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Volume I

EXPLANATORY NOTES

for

DEPARTMENT OF AGRICULTURE

Fiscal Year

1949

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UNITED STATES DEPARTMENT OF AGRICULTURE

Budget Estimates, 1949 Compared with Appropriations and Loan Authorization, 1948

[Note.--Figures in brackets [] not included in totals; 1948 figures include all supplemental appropriations to date, and are adjusted for comparability with the appropriation setup in the 1949 Budget estimates.]

Bureau or Item	Appropriations and Loan Authorization 1948	Budget estimates, 1949	Increase (+) or decrease (-)
OFFICE OF THE SECRETARY (Salaries and expenses)	$2,086,836	$2,083,000	-$3,836
PENALTY MAIL (Section 2, Public Law 364, 78th Congress)	3,486,000	3,748,000	+262,000
RESEARCH AND MARKETING ACT of 1946	9,000,000	19,000,000	+10,000,000
OFFICE OF SOLICITOR (Salaries and expenses)	2,083,000	2,124,500	a/ +41,500
OFFICE OF INFORMATION:			
Salaries and expenses	580,164	580,000	-164
Printing and binding	1,607,000	1,857,000	+250,000
Total	2,187,164	2,437,000	+249,836
LIBRARY (Salaries and expenses)	660,000	660,000	- -
BUREAU OF AGRICULTURAL ECONOMICS:			
Economic investigations ...	1,988,500	1,988,500	- -
Crop and livestock estimates	2,375,400	2,375,400	- -
Total	4,363,900	4,363,900	- -
OFFICE OF FOREIGN AGRICULTURAL RELATIONS (Salaries and expenses)	503,000	514,700	+11,700
INTERNATIONAL PRODUCTION CONTROL COMMITTEES	b/ [12,500]	c/ - -	[-12,500]

a/ Budget estimate, 1949, provides change in working funds as compared with 1948 by direct appropriation and transfers of +$53,500.

b/ Transferred from the appropriation made by section 12(a) of the Agricultural Adjustment Act, approved May 12, 1933, and from "Administration of Sugar Act".

c/ Funds required for this purpose in 1949 are included in the estimates for the Department of State.

Bureau or Item	Appropriations and Loan Authorization 1948	Budget estimates, 1949	Increase (+) or decrease (-)
EXTENSION SERVICE:			
Payments to States:			
Capper-Ketcham Act	$1,480,000	$1,480,000	- -
Bankhead-Jones Act, Title II:			
Section 21	12,000,000	12,000,000	- -
Section 23	8,500,000	8,500,000	- -
Additional extension work	555,000	555,000	- -
Alaska	23,950	23,950	- -
Puerto Rico	274,000	408,000	+$134,000
Cooperative agricultural extension work (permanent)	4,704,710	4,704,710	- -
Total, payments to States	27,537,660	27,671,660	+134,000
Salaries and expenses:			
Administration and coordination of extension work	827,200	827,200	- -
Total	28,364,860	28,498,860	+134,000
AGRICULTURAL RESEARCH ADMINISTRATION:			
OFFICE OF ADMINISTRATOR (Salaries and expenses)	481,500	406,300	-75,200
SPECIAL RESEARCH FUND	1,203,000	1,230,000	+27,000
RESEARCH ON STRATEGIC AND CRITICAL AGRICULTURAL MATERIALS (rubber investigations)	349,000	349,000	- -
RESEARCH ON AGRICULTURAL PROBLEMS OF ALASKA	144,940	144,940	- -
OFFICE OF EXPERIMENT STATIONS:			
Payments to States:			
Hatch Act	720,000	720,000	- -
Adams Act	720,000	720,000	- -
Purnell Act	2,880,000	2,880,000	- -
Bankhead-Jones Act	2,661,268	2,997,560	+336,292
Hawaii	90,000	90,000	- -
Puerto Rico	90,000	90,000	- -
Total, payments to States	7,161,268	7,497,560	+336,292
Salaries and expenses:			
Administration of grants and coordination of research with States	211,000	197,000	-14,000

Bureau or Item	Appropriations and Loan Authorization 1948	Budget estimates, 1949	Increase (+) or decrease (-)
AGRICULTURAL RESEARCH ADMINISTRATION: Cont.			
OFFICE OF EXPERIMENT STATIONS:			
Salaries and expenses: Cont.			
Federal Experiment Station:			
Puerto Rico	$114,700	$124,700	+$10,000
Total, salaries and expenses	325,700	321,700	-4,000
Total	7,486,968	7,819,260	+332,292
BUREAU OF ANIMAL INDUSTRY:			
Salaries and expenses:			
Animal husbandry	a/ 1,323,400	1,405,500	+82,100
Diseases of animals	1,045,000	1,055,000	+10,000
Eradicating tuberculosis and Bang's disease	6,750,000	6,250,000	-500,000
Inspection and quarantine	1,225,197	1,225,000	-197
Meat inspection	b/ 5,000,000	- -	-5,000,000
Virus Serum Toxin Act	315,000	365,000	+50,000
Total, Salaries and expenses	15,658,597	10,300,500	-5,358,097
Eradication of foot-and-mouth and other contagious diseases of animals c/	5,100,000	- -	-5,100,000
Marketing agreements, hog cholera virus and serum d/	[43,000]	[43,000]	[- -]
Total	20,758,597	10,300,500	-10,458,097

a/ Includes $17,900 for Chinsegut Hill Sanctuary at Brooksville, Florida, appropriated in The Supplemental Appropriation Act, 1948.

b/ The Agricultural Appropriation Act, 1948, provided this amount as a working capital fund to be reimbursed from fees charged packers for total cost of meat inspection services effective July 1, 1947.

c/ Consists of $100,000 provided in the Department of Agriculture Appropriation Act, 1948, and $5,000,000 appropriated in Emergency Appropriation Act, 1948, for control and eradication of Foot-and-mouth disease. In addition, The Supplemental Appropriation Act, 1948, authorizes the Secretary to transfer to this appropriation from funds available to the bureaus, corporations, and agencies of the Department such additional amounts as are necessary for the eradication of the foot-and-mouth disease. Pending the availability of information necessary to determine the requirements of the foot-and-mouth disease eradication program in 1948 and 1949, and the submission of supplemental estimates therefor, the Budget Estimates propose to continue the language authorizing the Secretary to transfer from other funds of the Department the amounts necessary for the eradication of the disease.

d/ Transferred from the appropriation made by section 12(a) of the Agricultural Adjustment Act, approved May 12, 1933.

Bureau or Item	Appropriations and Loan Authorization 1948	Budget estimates, 1949	Increase (+) or decrease (-)
AGRICULTURAL RESEARCH ADMINISTRATION: Cont.			
BUREAU OF DAIRY INDUSTRY (Salaries and expenses) ...	$1,016,300	$1,050,000	+$33,700
BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING (Salaries and expenses):			
Field crops	2,650,900	2,672,300	+21,400
Fruit, vegetable, and specialty crops	2,578,100	2,525,500	-52,600
Forest diseases	379,280	380,480	+1,200
Soils, fertilizers, and irrigation	1,466,000	1,604,000	+138,000
Agricultural engineering	637,000	654,000	+17,000
National Arboretum	436,900	413,900	-23,000
Southern Great Plains Field Station	45,600	- -	-45,600
Total	8,193,780	8,250,180	+56,400
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE:			
Salaries and expenses:			
Insect investigations .	a/ 2,956,300	3,019,800	+63,500
Insect and plant disease control	2,266,700	2,266,700	- -
Foreign plant quarantines	2,000,000	2,212,000	+212,000
Total, salaries and expenses	7,223,000	7,498,500	+275,500
Control of emergency outbreaks of insects and plant diseases	2,050,000	2,050,000	- -
Total	9,273,000	9,548,500	+275,500
BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY:			
Salaries and expenses:			
Agricultural chemical investigations	511,500	511,500	- -
Naval stores investigations	152,550	152,550	- -
Regional research laboratories	5,000,000	5,000,000	- -
Total	5,664,050	5,664,050	- -

a/ Includes $5,000 for research laboratory at Quincy, Florida, appropriated in Second Supplemental Appropriation Act, 1948.

Bureau and Item	Appropriations and Loan Authorization 1948	Budget estimates, 1949	Increase (+) or decrease (-)
AGRICULTURAL RESEARCH ADMINISTRATION: Cont.			
BUREAU OF HUMAN NUTRITION AND HOME ECONOMICS (Salaries and expenses)	$800,000	$813,000	+$13,000
CONTROL OF FOREST PESTS:			
Gypsy and brown-tail moths	603,600	603,600	- -
Forest Pest Control Act	134,691	135,000	+309
White pine blister rust	3,750,000	3,750,000	- -
Dutch elm disease	101,800	101,800	- -
Total	4,590,091	4,590,400	+309
FOREST SERVICE:			
Salaries and expenses:			
General administrative expenses	650,000	650,000	- -
National forest protection and management	23,914,175	25,064,000	+1,149,825
Fighting forest fires	100,000	100,000	- -
Forest and range management investigations	2,475,000	2,565,000	+90,000
Forest products	1,250,000	1,250,000	- -
Forest resources investigations	822,000	822,000	- -
Total, salaries and expenses	29,211,175	30,451,000	+1,239,825
Forest fire cooperation	9,000,000	9,000,000	- -
Farm and other private forestry cooperation	809,500	809,500	- -
Acquisition of lands for national forests	750,000	500,000	-250,000
Acquisition of lands from national forest receipts	142,000	142,000	- -
Payments to States and territories from national forest fund (permanent)	4,548,000	4,548,000	- -
Payments to school funds, Arizona and New Mexico, national forest fund (permanent)	49,217	49,217	- -
Roads and trails for States, national forest fund (permanent)	1,819,200	1,819,200	- -
Total	46,329,092	47,318,917	+989,825

Bureau and Item	Appropriations and Loan Authorization 1948	Budget estimates, 1949	Increase (+) or decrease (-)
FOREST ROADS AND TRAILS:			
Forest highways	$5,300,000	$5,300,000	- -
Forest development roads	11,000,000	9,750,000	-$1,250,000
Total	16,300,000	15,050,000	-1,250,000
FLOOD CONTROL	a/ 3,000,000	9,000,000	+6,000,000
SOIL CONSERVATION SERVICE:			
Soil conservation research	1,048,000	1,048,000	- -
Soil conservation operations	38,000,000	38,000,000	- -
Total	39,048,000	39,048,000	- -
LAND UTILIZATION AND RETIREMENT OF SUBMARGINAL LAND (TITLE III, FARM TENANT ACT)	1,600,000	1,564,000	-36,000
Payments to counties, submarginal land program (permanent)	206,000	206,000	- -
PRODUCTION AND MARKETING ADMINISTRATION:			
CONSERVATION AND USE OF AGRICULTURAL LAND RESOURCES	b/228,000,000	b/ 150,000,000	-78,000,000
SUGAR ACT	55,000,000	72,000,000	+17,000,000
EXPORTATION AND DOMESTIC CONSUMPTION OF AGRICULTURAL COMMODITIES (Section 32 funds)	149,023,930	135,000,000	-14,023,930
Less transfer to "National School Lunch Act" in 1948	-65,000,000	- -	+65,000,000
Less rescissions	-40,023,930	-91,000,000	-50,976,070
Available for Section 32 purposes	44,000,000	44,000,000	- -
NATIONAL SCHOOL LUNCH ACT	65,000,000	65,000,000	- -

a/ In addition, prior year balances available. Includes $2,000,000 appropriated in the Second Supplemental Appropriation Act, 1948.

b/ In addition, funds available from advance conservation material fund: 1948, $37,635,000; 1949, $5,072,000.

Bureau and Item	Appropriations and Loan Authorization 1948	Budget estimates, 1949	Increase (+) or decrease (-)
PRODUCTION AND MARKETING ADMINISTRATION: Cont.			
MARKETING SERVICES:			
Market news service	$1,566,250	$1,626,250	+$60,000
Market inspection of farm products	712,000	712,000	- -
Marketing farm products	1,149,500	1,084,500	-65,000
Tobacco Acts	1,552,000	1,552,000	- -
Cotton Statistics, Classing, Standards and Futures Acts	1,399,000	1,399,000	- -
Marketing Regulatory Acts	a/ 3,096,750	3,178,350	+81,600
Total	9,475,500	9,552,100	+76,600
COMMODITY CREDIT CORPORATION (Administrative expenses from Corporation funds) b/	[8,450,000]	[7,575,000]	[-875,000]

a/ Includes $75,000 appropriated in Supplemental Appropriation Act, 1948, for administration of the Insecticide Act as amended by Act of June 25, 1947 (Public Law 104).

b/ The Commodity Credit Corporation is authorized to borrow and have outstanding a maximum of $4,750,000,000 at any one time. On June 30, 1947, borrowings against this authorization amounted to $550,330,021. New borrowings are estimated at $774,000,000 for 1948 and $1,160,000,000 for 1949 and outstanding borrowings are estimated at $261,000,000 as of June 30, 1948 and $181,985,000 as of June 30, 1949. In addition to the above borrowing authorizations, the Act of February 18, 1946 (Public Law 301, 79th Congress) made $500,000,000 available, to be held as a reserve for post-war price support of agriculture, against which $50,950,696 of losses were charged during the fiscal year 1947; additional charges are estimated at $91,405,456 for 1948 and $80,883,000 for 1949. Exclusive of funds used to repay borrowings and to return capital surplus to the U. S. Treasury, funds to be used in carrying out the Corporation's activities are estimated to aggregate $3,143,064,791 for fiscal year 1948 and $3,400,578,230 for fiscal year 1949.

Bureau and Item	Appropriations and Loan Authorization 1948	Budget estimates, 1949	Increase (+) or decrease (-)
COMMODITY EXCHANGE AUTHORITY ..	$530,000	$530,000	- -
FARMERS' HOME ADMINISTRATION:			
Farm tenancy loans	15,000,000	15,000,000	- -
Production and subsistence loans	60,000,000	75,000,000	+$15,000,000
Farm tenant mortgage insurance fund	1,000,000	- -	-1,000,000
Salaries and expenses	21,000,000	23,000,000	+2,000,000
Total	97,000,000	113,000,000	+16,000,000
WATER FACILITIES, ARID AND SEMI-ARID AREAS	1,750,000	1,750,000	- -
RURAL ELECTRIFICATION ADMINISTRATION:			
Administrative expenses ...	5,000,000	5,000,000	- -
Loans (Authorization to borrow)	225,000,000	300,000,000	+75,000,000
Total	230,000,000	305,000,000	+75,000,000
FARM CREDIT ADMINISTRATION (Salaries and expenses):			
Direct appropriation	561,000	531,000	-30,000
Assessments against member institutions of the Farm Credit system	2,519,456	2,371,800	-147,656

Bureau and Item	Appropriations and Loan Authorization 1948	Budget estimates, 1949	Increase (+) or decrease (-)
FEDERAL FARM MORTGAGE CORPORATION (Administrative expenses from corporation funds) a/	[2,750,000]	[2,160,700]	[-589,300]
FEDERAL INTERMEDIATE CREDIT BANKS (Administrative expenses from corporation funds) a/	b/[1,277,500]	[1,647,800]	[+370,300]
PRODUCTION CREDIT CORPORATIONS (Administrative expenses from corporation funds) a/	[1,600,000]	[1,602,600]	[+2,600]
REGIONAL AGRICULTURAL CREDIT CORPORATION (Administrative expenses from corporation funds) a/	[200,000]	[46,800]	[-153,200]

a/ The above wholly-owned corporations, under the supervision of the Farm Credit Administration, have been organized and are in operation for the purpose of furnishing and facilitating credit for agricultural purposes. With the exception of the Production Credit Corporations, they are authorized by law to borrow funds for current operations. For more detailed information on the activities of these corporations, see pages 1187 to 1219 of the 1949 Budget. In addition, the Farm Credit Administration examines and supervises the Federal Land Banks and the Banks for Cooperatives which are a part of the farm credit system.

b/ Includes $27,500 estimated supplemental for audit expenses of the General Accounting Office.

Bureau and Item	Appropriations and Loan Authorization 1948	Budget estimates, 1949	Increase (+) or decrease (-)
FEDERAL CROP INSURANCE CORPORATION: a/			
Salaries and expenses	$5,000,000	$3,725,000	-$1,275,000
Appropriation to Secretary of Treasury for subscriptions to capital stock	10,000,000	- -	-10,000,000
SUGAR RATIONING ADMINISTRATION	b/ 960,000	- -	-960,000
TOTAL, APPROPRIATIONS AND LOAN AUTHORIZATION	968,975,034	993,242,907	+24,267,873
DEDUCT: Authorization to borrow from Secretary of the Treasury for rural electrification loans	225,000,000	300,000,000	+75,000,000
TOTAL APPROPRIATIONS, DEPARTMENT OF AGRICULTURE	743,975,034	693,242,907	-50,732,127

a/ Funds provided by income from insurance premiums, sales of commodities, and interest are estimated at $63,358,000 in fiscal year 1948 and $34,182,000 in the fiscal year 1949. In addition, $10,000,000 was provided in the fiscal year 1948 through subscriptions to capital stock of the Corporation by the Secretary of the Treasury. Operating costs, other than administrative expenses, are estimated to aggregate $44,741,000 for the fiscal year 1948 and $31,544,000 for fiscal year 1949. Total insurance coverage of the Corporation is estimated at $500,000,000 in fiscal year 1948. Total coverage is expected to decrease to $250,000,000 in fiscal year 1949 as a result of the crop insurance program being placed on an experimental basis under the provisions of the Act of August 1, 1947, Public Law 320.

b/ Includes $750,000 appropriated in Emergency Appropriation Act, 1948, and $210,000 appropriated in Supplemental Appropriation Act, 1948.

Bureau and Item	Appropriations and Loan Authorization 1948	Budget estimates, 1949	Increase (+) or decrease (-)
	Trust Funds		
Animal Industry:			
Expenses and refunds, inspection and grading of canned wet animal foods	$69,175	$73,162	+$3,987
Forest Service:			
Cooperative work	4,500,000	4,500,000	--
Soil Conservation Service:			
Payments in lieu of taxes and operation and maintenance costs, water conservation and utilization projects	81,128	64,053	-17,075
Operation and maintenance, water distribution systems, water conservation and utilization projects	10,403	10,403	--
Production and Marketing Administration:			
Moisture content and grade determinations for CCC	1,354,000	1,354,000	--
Indemnity fund, county associations	500	500	--
Undistributed cotton price adjustment payments	1,000	1,000	--
Expenses and refunds, inspection and grading of farm products	4,950,000	4,360,000	-590,000
Grading of agricultural commodities	642,000	926,000	+284,000
Farmers' Home Administration:			
State rural rehabilitation corporation funds	11,000,000	9,500,000	-1,500,000
Liquidation of deposits, lease and purchase contracts	20,000	5,000	-15,000
Miscellaneous contributed funds:	273,535	243,160	-30,375
Return of excess deposits for reproduction of photographs, mosaics, and maps	2,500	2,600	+100
Unearned fees and other charges, unclaimed moneys, etc.	744	644	-100
Total, trust accounts	22,904,985	21,040,522	-1,864,463

Prepared by: Office of Budget and Finance, Division of Estimates and Allotments, Estimates Section, January 16, 1948.

OFFICE OF THE SECRETARY

Appropriation Act, 1948		$2,050,000
Transfers, 1948, from other appropriations (as shown in detail on next page)		+87,560
Proposed transfers in 1949 estimates:		
From "Salaries and expenses, Office of the Solicitor" to provide for salaries and other expenses of hearing examiners engaged in conducting judicial and quasi-judicial hearings		+42,000
To "Salaries and expenses, Office of Information" to centralize handling of public requests for publications and general information		-5,164
Total anticipated available, 1948		$2,174,396
Budget estimate, 1949:		
Direct appropriation	$2,083,000	
Transfers, 1949, from other appropriations (as shown in detail on next page)	87,560	
Total available, 1949		2,170,560
Decrease, 1949		-3,836

SUMMARY OF DECREASES, 1949

Elimination of a non-recurring provision in the 1948 Agricultural Appropriation Act for replacing the official automobile of the Secretary of Agriculture	-3,000
Decrease to round-off appropriation total	-836

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. General administration (including offices of the Secretary, Under Secretary, and Assistant Secretary)	$445,467	$447,492	$444,322	-$3,170(1)
2. Personnel administration and service (including divisions of classification; investigations; employment; employee health; personnel relations and safety; training; and organization and personnel management)	528,913	579,632	579,408	-224(2)

(Continued on next page)

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
3. Budgetary and financial administration and service (including divisions of estimates and allotments; accounting; audit; corporate fiscal service; fiscal management; legislative reports; purchase, sales, and traffic; procurement and supply management; and bureau accounting service)	$637,983	$653,692	$653,440	-$252(2)
4. General operations (including divisions of communications; real estate; equipment and engineering services; administrative services; and administration of central working capital fund services)	415,512	431,580	431,415	-165(2)
5. Office of hearing examiners	55,235	62,000	61,975	-25(2)
Unobligated balance	51,013	- -	- -	- -
Total funds provided by Agricultural Appropriation Bill	2,134,123	2,174,396	2,170,560	-3,836
Reimbursement from Food and Drug Administration for emergency room and health services provided Food and Drug employees located in South Agriculture Building	- -	- -	+1,100	
Total available	2,134,123	2,174,396	2,171,660	
Transfers in estimates to:				
"Salaries and expenses, Office of Information, Department of Agriculture"	+17,137	+5,164	- -	

(Continued on next page)

Project	1947	1948 (estimated)	1949 (estimated)
"Salaries and expenses, Extension Service, Department of Agriculture"	4,300	- -	- -
Transfer in estimates from:			
"Salaries and expenses, Office of Solicitor, Department of Agriculture"	-42,000	-42,000	- -
"Administrative expenses, Commodity Credit Corporation, Department of Agriculture"	-76,560	-76,560	-76,560
"Flood Control, Department of Agriculture"	-11,000	-11,000	-11,000
"Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act Costs)	-187,500	- -	- -
"Salaries and expenses, Food and Drug Administration, Federal Security Agency"	- -	- -	-550
"Certification and inspection services, Food and Drug Administration, Federal Security Agency, special account"	- -	- -	-550
Total appropriation or estimate	1,838,500	2,050,000	2,083,000

DECREASES

The net decrease of $3,836 in this item for 1949 consists of the following:

(1) A decrease of $3,170 under project 1 composed of:

(a) A decrease of $3,000 due to the elimination in 1949 of a non-recurring item provided in the 1948 Agricultural Appropriation Act to replace the official automobile of the Secretary. Since a similar replacement is not anticipated in 1949, the estimates for the latter year have been reduced accordingly.

(b) A decrease of $170 due to a round-off of the over-all 1949 estimate for the Office of the Secretary.

(2) Decreases totaling $666 under projects 2, 3, 4, and 5 due to a round-off of the over-all 1949 estimate for the Office of the Secretary.

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored, deleted matter enclosed in brackets):

> For personal services in the office of the Secretary of Agriculture, hereafter in this Act referred to as the Secretary, in the District of Columbia, and elsewhere, and other necessary expenses, including the purchase of [two (one at not to exceed $3,000)] one passenger motor [vehicles] vehicle for replacement only; * * *.

The changes in language under this item delete the provision in the 1948 Agricultural Appropriation Act for replacement of the official car of the Secretary of Agriculture and provides for continuation of the normal replacement of one of the automobiles assigned to the Office of the Secretary, and for such contingencies as the theft or damage beyond repair of one of the cars used for the official transportation of the Secretary of Agriculture and his assistants.

ITEMIZATION OF ESTIMATES

Appropriation: Salaries and expenses, Office of Secretary of Agriculture

Funds Available for Obligation

Item	Estimate, 1948	Budget estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$2,050,000	$2,083,000	+$33,000
Received by transfer from:			
"Administrative expenses, Commodity Credit Corporation, Department of Agriculture"	+76,560	+76,560	- -
"Flood control, Department of Agriculture"	+11,000	+11,000	- -
"Salaries and expenses, Food and Drug Administration, Federal Security Agency"	- -	+550	+550
"Certification and inspection services, Food and Drug Administration, Federal Security Agency, special account"	- -	+550	+550
Total available for obligation	2,137,560	2,171,660	+34,100
Transfer in 1949 estimates to			
"Salaries and expenses, Office of Information, Department of Agriculture"	-5,164	- -	+5,164

(Continued on next page)

ITEMIZATION OF ESTIMATES (Continued)

Item	Estimate, 1948	Budget estimates, 1949	Increase( ) or decrease(-)
Transfer in 1949 estimates from "Salaries and expenses, Office of Solicitor, Department of Agriculture"	+ 42,000	- -	-42,000
Total obligations	2,174,396	2,171,660	-2,736 a/

Obligations by Objects

Standard Classification			
01 Personal services	$1,997,742	$1,998,712	$970
02 Travel	79,150	79,150	- -
03 Transportation of things	5,600	5,600	- -
04 Communication services	19,300	19,300	- -
05 Rents and utility services....	2,300	2,300	- -
07 Other contractual services....	37,000	36,776	-224
08 Supplies and materials	13,140	12,658	-482
09 Equipment	20,164	17,164	-3,000
Grand total obligations	2,174,396	2,171,660	-2,736

a/ Reflects proposed reimbursement of $1,100 from the Food and Drug Administration for emergency room and health services rendered its employees located in the South Agriculture Building.

WORK UNDER THIS APPROPRIATION

This appropriation provides funds for the salaries and general expenses of the immediate offices of the Secretary of Agriculture, Under Secretary, and Assistant Secretary, together with their respective staffs, as well as for the departmental offices of Personnel, Budget and Finance, Plant and Operations, and Hearing Examiners. Following are brief summaries of the work currently performed under each of the projects shown in the project table for this appropriation:

(1) General administration.

This project covers the immediate Office of the Secretary, the Under Secretary, the Assistant Secretary, and necessary staff. The Secretary, Under Secretary, and Assistant Secretary direct the Department, develop over-all policy to meet ever-changing conditions, and interpret and carry out policy formulated by the Congress. National agricultural programs, problems, Department structure and regulations are under constant review as agriculture adjusts to national and international needs. The Secretary and his aides keep in touch with the Congress and with other Departments and agencies, and take such action as is necessary to integrate Department action with national policy.

World welfare depends on the American economy and directly on our food production to an unparalleled degree. The correlation of Governmental with Departmental plans and activities devolves upon the Secretary and his staff. Participation in international organizations continues to increase as the United States cooperates with other countries through the United Nations, the Food and Agriculture Organization, and the proposed International Trade Organization. Closely related is work connected with the American Mission to Greece, the post-UNRRA relief program, and the combined British-U.S. zones of Germany. In addition, the campaign to eliminate Foot-and-Mouth disease in Mexico requires close supervision by the Office of the Secretary.

The major responsibilities of this Office are fourfold:

1. Regular, continuing direction of Department activities, including that required for new programs, such as the Research and Marketing Act;

2. Leadership and participation in programs to alleviate the emergent world food situation;

3. Increasing participation in international organizations, apparently as a long-time trend; and,

4. Long-range planning for the welfare of American agriculture and for a more efficient Department organization structure.

(2) Personnel administration and service.

Current Functions and Responsibilities: The Office of Personnel under the supervision of the Director of Personnel functions as a staff office of the Secretary for the general direction, coordination and administration of the personnel management program of the Department, including:

1. Policies and Procedures: Plans, formulates, and promulgates general departmental personnel policies and procedures to assure uniform and effective personnel management practices and techniques. The policies and procedures are made effective as follows:

(a) Issuance of written instructions to bureaus concerning regulatory and administrative policies and procedures.

(b) Delegation of authorities to bureaus that enable personnel transactions to be accomplished with a minimum of review and maximum economy in operations.

(c) Development and administration of standards and uniform practices for all phases of personnel management.

(d) Application of personnel techniques and knowledge to enable the best personnel utilization possible.

Program activities can only be successful to the extent that employees are capable of doing their jobs satisfactorily. Personnel policies and procedures are designed to aid officials in making the most effective use of all employees in the Department.

2. Classification, Salary Administration and Class Specifications: These functions include:

(a) Establishing and administering wage rate policies; fixing rates of pay of employees exempt by Section 5 from the compensation schedules of the Classification Act of 1923, as amended; and developing pay plans and rules of administration for instrumentalities of the Department and administers the efficiency rating plans, except appeals.

(b) Cooperating with the Civil Service Commission in drafting class specifications for positions common throughout the Federal Service; developing class specifications for positions peculiar to the department.

(c) Responsibility for the analysis, evaluation, and allocation of departmental and field positions.

3. Personnel Relations and Welfare: Planning, developing and carrying out appeal, counseling and welfare programs and services; administering the Department's efficiency rating and appeals procedures; and reviewing and recommending decisions on formal grievance appeals.

4. Safety: Planning, organizing, coordinating and carrying out the safety program; recommending regulations covering hazards in all operations; maintaining a system of accident record reporting; and making cause analysis of serious and fatal accidents, and recommending preventative measures.

5. Training: Planning and directing the formulation of training policies, objectives and procedures on departmental level for general training in personnel administration and for training in specific types of clerical, administrative, supervisory, professional and technical jobs; advising and cooperating with the bureaus in applying new and better training techniques to programs of the bureaus; and assisting bureaus in initiating, revising and reorganizing their training programs to maintain a high morale and to increase job efficiency.

6. Employment, Recruitment, Placement, Examination, Separation, and Retirement: Developing, establishing and administering policies, standards, and procedures in the employment phases of personnel administration throughout the Department; and conducting systematic reviews of delegated employment authorities for compliance with legal, policy and regulatory requirements.

7. Organization and Personnel Management:

(a) Reviewing organization changes to currently ensure the maintenance of good structure and functionalization; developing new and improved personnel procedures and organization patterns; and conducting surveys and reviewing Department organization to improve structure, lines of authority and responsibility, flow of work, workload distribution, and to promote more effective use of personnel.

(b) Initiating the preparation of policy, regulatory and administrative personnel instructions, and maintaining control records on delegated authorities.

8. Investigations: Administering the overall planning and direction of investigations involving:

(a) Alleged violations of laws applicable to the Department or violations of Department regulations;

(b) Alleged mismanagement and misconduct of personnel within the Department and its instrumentalities;

(c) Establishment and administration of standards to be followed by bureaus of the Department in conducting disciplinary investigations and in determining the action to be taken as a result thereof.

9. Employee Health: Maintaining health room facilities for employees of the Washington Metropolitan Area; establishing and administering standards for health service programs in the field; providing health counseling; and instructing employees injured in line of duty, regarding compensation rights, report requirements, and procedures.

The work of the office is performed through seven functional divisions. Each division is responsible to the Director for the efficient carrying out of the functions and responsibilities in its particular field of work.

Examples of recent developments:

The following examples of recent developments are illustrative of current activities and have a significant bearing upon the workload of the Office:

1. Public Law 658, 79th Congress: Provided for the establishment of health service programs for Federal Employees.

2. Executive Order 9691: Provided for the establishment of U. S. Civil Service Committees of Expert Examiners for the recruitment and examination of scientific, professional and technical employees for positions peculiar to the agency.

3. Executive Order 9830: Amends the Civil Service Rules, and affects the examination, recruitment, appointment, promotion, demotion, transfer, reassignment and separation procedures.

4. Executive Order 9835: Provided for the establishment of a Federal Employee Loyalty Program.

During the past fiscal year there have been other laws, executive orders, rules and regulations of the U. S. Civil Service Commission, Comptroller General decisions and other regulatory decisions which had to be integrated with existing personnel management policies, procedures and activities of the Department. Examples of these are

as follows:

(a) Policies and procedures were devised to implement the Administrative Procedures Act, which, among other things, authorizes heads of Departments to pay cash awards to departmental personnel for meritorious suggestions, to delegate to subordinate officials power vested in him by law to take final action in matters pertaining to employment, direction and general administration of personnel and to provide for suspension or removal for using or authorizing the use of government vehicles for other than official purposes.

(b) Formulation and administration of policies and procedures for implementing the personnel aspects of the Farmers Home Administration Act and the Research and Marketing Act of 1946.

(c) Revising of departmental regulatory instructions to conform with the new rules and regulations of the U. S. Civil Service Commission.

(d) Interpretations of laws by the Comptroller General governing classification, salary administration, sick and annual leave, reduction in force, retirement, military leave, and other phases of personnel management necessitated revisions of departmental regulatory instructions.

(e) General administration of the reduction-in-force procedures. Long-range objectives of the Personnel Management Program were temporarily curtailed in order to place greater emphasis on the reduction-in-force process during the critical phase of the reductions. A special reassignment committee composed of the Office's top staff was temporarily taken from regular assignments and directed to give first and foremost consideration to problems of reassignment and separation resulting from the reduction in force.

(3) Budgetary and financial administration and service.

Functions: As a staff office of the Secretary, the Office of Budget and Finance exercises general direction of the budgetary, fiscal, procurement and related activities of the Department. The Office formulates and promulgates over-all departmental policies and procedures relating to these functions and, in cooperation with staff and program agencies, develops improvements in the management and operations of departmental programs. It also acts as the liaison office on budgetary, fiscal and procurement matters with other Government agencies, including the Budget Bureau, Treasury Department, General Accounting Office, and Congressional Committees. The Office operates through eight functional divisions, as follows: Estimates and Allotments; Accounting; Audit; Corporate Fiscal Service; Fiscal Management; Legislative Reports; Procurement and Supply Management; and Purchase, Sales and Traffic.

1. Estimates and Allotments. This division supervises and coordinates the formulation and preparation of estimates and supporting justifications of the funds needed for the work of the Department, including the review and analysis of the estimates, and the preparation of budgetary and statistical statements, etc., relating thereto. It is also responsible for the allotment and apportionment of such funds and for current obligation reports thereon. Important aspects of this work include the development of methods and the issuance of instructions and policies to simplify and improve the effectiveness and increase the efficiency of departmental budgetary administration.

2. Accounting. Departmental fund control accounts are maintained in summary form on all appropriations, trust, working, and other Treasury funds made available to the various agencies to carry out programs administered by the Department. Agency fund accounting systems and reports are reviewed to ascertain compliance with applicable laws and regulations, and to facilitate the establishment and maintenance of improved fiscal and accounting standards; technical assistance is given to agencies of the Department in developing charts of accounts and accounting methods adapted to their particular needs; and the counsel and assistance of the General Accounting Office, Treasury Department, and others concerned are obtained through the Office as the central liaison representative on accounting and related problems. In addition, bureau fiscal and accounting operations which can most easily and economically be handled as a centralized service are performed for certain agencies in the Department, primarily the Office of the Secretary, which do not maintain their own fiscal services.

3. Audit. General guidance and consultation for departmental agencies is provided in developing policies, methods,

standards and scope of internal audit programs, including programs relating to both government and commercial type audits of the financial activities of the various agencies and corporations within the Department. The Audit Division reviews audit and investigation reports of the General Accounting Office relating to financial transactions and operations of the Department, and prepares for use by appropriate departmental and agency officials analyses or comments generally applicable, and advises with the agencies on any corrective or preventive action required.

4. Corporate Fiscal Service. This division formulates and maintains a comprehensive and integrated system of financial reporting within the Department, including the preparation of regular consolidated and special financial statements covering all fiscal operations of the Department, involving capital, appropriated, or other funds. Special emphasis is placed on the development of standards for effective and useful financial reports. The division reviews and analyzes the reports of agencies of the Department for completeness, interpretability and timeliness, and advises with such agencies in order to facilitate interpretation of financial and related operating statements.

5. Fiscal Management. This division deals with a wide range of budgetary, fiscal, and administrative problems, including, in cooperation with the other units of the Office and other staff offices and governmental agencies, the development of improved and simplified operating methods, procedures, administrative regulations and requirements, and operating instructions and controls; management improvements; measures of economy and efficiency; and the design, management and control of administrative and program forms.

6. Legislative Reports. This division coordinates the preparation and submission of legislative reports to the Committees of Congress and the Budget Bureau, provides legislative information for departmental and bureau officials in connection with pending bills and resolutions relating to agriculture, and maintains files of bills, hearings, and other legislative documents to meet the particular needs of the Department.

7. Procurement and supply functions. The Divisions of Procurement and Supply Management and of Purchase, Sales and Traffic formulate and promulgate policies and procedures governing the procurement, utilization and disposition of supplies and equipment and encourage improvements in supply and warehouse management and related activities of the Department other than for the agricultural commodity purchase and supply programs. The functions of these divisions are carried out, except in the case of certain major or special type contracts, through delegations to bureau officers of

procurement and sales authorities, as needed, in the light of agency programs and facilities for operating effectively under such delegations, and through periodic reviews of the manner in which such delegations are exercised. Guides are prepared and issued for the performance of these functions, and recommendations made for the economical utilization of administrative supplies and equipment. Coordination of inter-departmental liaison activities relating to these matters is also maintained.

Some examples of recent activities: The following are indicative of some of the types of activities involving special significance in their budgetary and financial phases with which the Office has had to be concerned during the past year.

(a) Transfer to the Department of Agriculture of administration of sugar rationing pursuant to the Sugar Control Extension Act of 1947 (P.L. 30, 80th Congress).

(b) The establishment of a "Meat Inspection Fund" to account for reimbursements of costs of Federal inspection of meat and meat-food products.

(c) The formulation and administration of policies and proceudres for implementing the budgetary, fiscal, and procurement aspects of programs conducted under the Research and Marketing Act of 1946.

(d) Arrangements for the financing of certain loan programs of the Department through fund-borrowing operations from the Secretary of the Treasury, rather than from the Reconstruction Finance Corporation.

(e) Public Law 8, 80th Congress, which authorized the control and eradication of foot-and-mouth disease and rinderpest, and which involved the establishment and direction of extensive field operations by the Department in a foreign country.

(f) Foreign aid programs (P.L. 75, 80th Congress, Greek-Turkish aid); (P.L. 84, 80th Congress, relief to devastated areas); and (P.L. 389, 80th Congress, "Foreign Aid Act of 1947").

(g) Preparation and submission, for approval by the Comptroller General, of accounting systems for agencies in the Department pursuant to GAO General Regulation No. 100.

(h) The Government Corporation Control Act (P.L. 248, 79th Congress) presented many new and complex budgetary and fiscal problems which became the responsibility of the Office of Budget and Finance for interpretation and implementation in making the Act operative with regard to the corporations in the Department of Agriculture.

(4) General operations.

Functions and responsibilities: As a staff agency of the Office of the Secretary, the Office of Plant and Operations is responsible for the planning, initiation, development, coordination, and execution of the operational programs and activities of the Department relating to departmental housing, records administration, coordination of aerial photography and mapping operations, technical advisory services where engineering principles are involved in the acquisition and utilization of equipment, communication services (including telephone, telegraph, handling of mail, etc.), passenger transportation, central storeroom and supply, photographic and duplicating, and motor transport services, and administrative service functions for the Office of the Secretary.

1. Technical advisory service on engineering problems involved in the acquisition, utilization, and maintenance of equipment is afforded the agencies of the Department by a small staff of highly skilled engineers. These technicians keep abreast of the rapid changes and advances being made in this field and utilize this valuable information to the advantage of agency programs and activities requiring the use of automotive, farm machinery, heavy construction, photographic, laboratory, and other types of technical and scientific equipment.

2. Housing the activities of the Department continues to present a major problem because of the continuing space shortages and high rental costs. Concurrent with the problem of meeting the day-to-day urgent housing situation, the Office is directing its attention to the following projects:

(a) Improvements in space occupancy through consolidated housing of Agriculture activities wherever possible in the interest of effective program administration and facility of contact with the public.

(b) More effective space utilization through greater attention to proper office planning in space layouts.

(c) Conducting studies and analyzing surveys made by others relating to such factors as illumination levels, heating, ventilation, noise reduction, safety, etc., to employee efficiency, and determining where and to what extent improvements may be possible and economically feasible.

(d) Developing management and maintenance standards for buildings under the Department's control to insure adequate structural, mechanical, and safety conditions.

3. Development and operation of an effective Departmental records administration program is being actively prosecuted. Continuous surveys are being made and the staff is collaborating with the agencies in installing new and more efficient systems of records management and disposition. Advice and assistance have also been furnished upon request to other agencies of Government.

4. Studies in the maintenance of economical communications services for the Department also are occupying the attention of the staff. Working formulae derived from recent traffic studies are being applied with a view to evaluating service demands in terms of work-load and operating personnel requirements.

5. Mapping coordination and related activities: The technical assistant to the Chief of the Office of Plant and Operations is responsible for Departmental coordination and approval of aerial survey and mapping projects. The agencies of the Department have resumed normal mapping operations and every effort is being made, through clearance with other pertinent agencies of Government, to insure that no unnecessary duplication of mapping work prevails.

The technical assistant serves, by special assignment, as chairman of the Cartographic Panel of the Joint Research and Development Board of the Department of National Defense, and is the departmental member representative on the Board of Geographic Names recently constituted by Public Law 242, approved July 25, 1947.

Examples of recent activities:

The following examples are illustrative of the activities of the Office of Plant and Operations during the past year:

1. The American Telephone and Telegraph Company was requested to institute a comprehensive, nation-wide survey of the Department's facilities and requirements in the field of telegraphic communications. This survey is nearing completion and it is believed that the information being developed will be of the greatest assistance to the Department in its efforts to provide the most economical telegraphic communication service.

2. The program of retirement of records through transfer of those having permanent value to the National Archives and the destruction of records having no further value was greatly accelerated during the year. Approximately 176,780 linear feet of records were actually disposed of by agencies of the Department. In terms of equipment these records would require for their housing approximately 88,390 file drawers.

3. In the field of space occupancy, a move was consummated during the year which brought all of the agencies of the Department in the District of Columbia into the Agriculture group of buildings for the first time, with the exception of a few parcels of warehouse and other non-office types of space. This action enabled the Department to release 73,000 square feet of commercial space and helped the Public Buildings Administration to meet certain space problems with which it was confronted.

4. In the field of equipment and engineering services, there was an increase in 1947 of 46 per cent in the number of technical specifications developed and reviewed by the staff. Continued emphasis is being given, both intra-departmentally and through inter-departmental committees, chairmanned by the Bureau of the Budget, to consolidated automotive repair-shop facilities and potentialities.

(5) Office of hearing examiners:

The Office of Hearing Examiners was established within the Department of Agriculture on December 9, 1946, to meet the requirements of the Administrative Procedure Act (Public Law 404--79th Congress) which provided that, after December 11, 1946, employees engaged in investigative or prosecuting functions should not participate in the adjudication of cases required by statute to be determined after a hearing. The Act also provided that after June 11, 1947, statutory administrative hearings, with certain exceptions, should be conducted by hearing examiners appointed pursuant to terms of the act and subject to the civil-service laws.

The hearing examiners hold hearings, make reports, recommend decisions and perform such related duties as may be required by the Administrative Procedure Act and the statutory provisions, regulations and rules of practice applicable to the various matters under their jurisdiction. Such matters include proceedings arising under the Agricultural Marketing Agreement Act of 1937 (7 U. S. C. 1940 ed. 601 et seq.), rate making and disciplinary proceedings under the Packers and Stockyards Act (7 U.S.C. 1940 ed. 181 et seq.), and disciplinary proceedings under the Commodity Exchange Act (42 Stat. 998, 49 Stat. 1491, 54 Stat. 1059), the Perishable Agricultural Commodities Act (7 U.S.C. 1940 ed. 499a et seq.), the Federal Seed Act (53 Stat. 1275), and the Grain Standards Act (39 Stat. 482, 54 Stat. 765).

(b) Working Capital Fund, Department of Agriculture

The working capital fund is a "no-year" operating fund of $400,000 established in the 1944 appropriation act to pay the operating costs of certain centralized service organizations pending the receipts of reimbursements for such costs from the serviced bureaus and agencies. The integrity of the original appropriation is maintained from year to year by means of these reimbursements, and an appropriation in 1949 is, therefore, unnecessary.

Statements reflecting assets and liabilities, income and expenses, and reimbursements of the working capital fund as of June 30, 1947, are printed in the Budget schedules and in the Subcommittee Print for the fiscal year 1949.

(c) Cooperation With the American Republics (Transfer to Agriculture)

This Budget schedule reflects obligations under funds transferred to this Department from the State Department for development of complementary products, training grants in Agriculture, and rubber development, in cooperation with American Republics. Obligations under this appropriation are reflected in the Statementsof Obligations under Supplemental Funds of the various bureaus concerned.

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
esearch and Marketing Act (Allotment to ffice of the Secretary of Agriculture): For budgetary and accounting services rendered in connection with the Research and Marketing Act of 1946	---	$11,000	a/ ---
mergency Fund for the President, National Defense (Allotment to Agriculture), Office of the Secretary of Agriculture: For expenses involved in implementing the programs recommended by the President's Famine Emergency Committee and to enable the United States to carry out its responsibilities with respect to food for relief abroad	$1,407	---	---
upply and Distribution of Farm Labor: For accounting services in connection with allotments of Farm Labor program funds	b/ 5,331	---	---
enalty Mail Costs, Department of Agriculture (Allotment to Office of the Secretary): For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress	2,603	3,573	$3,840
TAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	9,341	14,573	3,840

/ Allotments under this appropriation for the fiscal year 1949 have not been determined.

/ Allotments from funds appropriated on a calendar year basis for farm labor supply program in a separate act.

PASSENGER MOTOR VEHICLES

As explained under "changes in language", the appropriation language for the Office of the Secretary proposes a decrease of one in the number of passenger motor vehicles authorized to be replaced under this appropriation providing for continuation of the normal replacement of one of the automobiles assigned to the Office of the Secretary, and for such contingencies as the damage beyond repair of one of the cars used for the official transportation of the Secretary of Agriculture and his assistants.

PENALTY MAIL ESTIMATE
Sec. 2, Public Law 364, 78th Congress
(Allotment to Office of the Secretary)

	1947	1948	1949	Increase (+) or decrease (-) 1949 over 1948
Category 1	- -	- -	- -	- -
Category 2	$2,603	$3,573	$3,840	+$267
Total	2,603	3,573	3,840	+267 (1)

(1) The increase of $267 for 1949 is for the purpose of providing sufficient funds with which to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

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Category 2 consists of the distribution of notices incident to the holding of administrative hearings, operating forms and regulations, replies to letters and other correspondence, invitations to bid on purchases, return cards for registered mail, and digests of essential Federal Register and legislative information relating to Agriculture.

PENALTY MAIL COSTS, DEPARTMENT OF AGRICULTURE 1/
(Section 2, Public Law 364, approved June 28, 1944)

Appropriation Act, 1948	$3,486,000
Budget estimate, 1949	3,748,000
Increase, 1949	+262,000

The increase of $262,000 in this item for 1949 consists of:

(1) An increase of $252,870 to meet increased costs to the Post Office Department of handling penalty mail of the Department of Agriculture, including official mailings of county extension agents and other county extension employees. The Post Office Department has advised that payments into the Treasury for costs to the Post Office Department of handling penalty mail in 1949 will be at the rate of $20 per thousand pieces of mail an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

(2) An increase of $9,130 to meet costs of additional mailings incident to increases proposed in the 1949 estimates for the Bureau of Plant Industry, Soils, and Agricultural Engineering, Forest Service, Farmers Home Administration, and Flood Control work by the Soil Conservation Service. These increases are explained at the end of the respective bureau's section of the Explanatory Notes.

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Funds made available in this appropriation cover the costs of penalty mail for the Department in accordance with the provisions of Section 2 (c) of Public Law 364, approved June 28, 1944. This Act provides that each department, agency, and establishment of the Government, except the Post Office Department, beginning with the fiscal year 1945, shall include in its estimates of appropriations an amount representing the anticipated cost to the Post Office Department of handling the penalty mail of such department, agency, or establishment. Section 2 (d) requires payments to be made into the general fund of the Treasury, from appropriations available for the purpose, an amount equivalent to the costs of handling such penalty mail. It is from this appropriation that such payments are made.

1/ Note.-- For the information of the Committee, individual summaries covering the mailings of each of the bureaus and agencies of the Department are provided at the end of each agency's section of the Explanatory Notes. To facilitate consideration of the estimates, it is suggested that questions which the Committee may have relating thereto be directed to the representatives of each bureau as they appear before the Committee to explain the estimates for their respective work programs.

Fulfillment of the objectives of agricultural programs authorized by the Organic Act of 1862 and subsequent legislation authorizing cooperative agricultural extension work, national forestry protection and administration, marketing and regulatory services, etc., requires dissemination annually of substantial numbers of farmers' bulletins, crop and livestock reports, crop reporting schedules, market news reports, technical publications, maps, etc. The transfer to the Department of such agencies as the Farm Credit Administration, Commodity Credit Corporation, the Rural Electrification Administration, and others, and the enactment of legislation such as, Agricultural Adjustment, Bankhead-Jones Farm Tenant Act have placed additional responsibilities upon the Department, requiring substantial mailings of billings on loans, notices to farmers, operating reports and forms, etc. Also involved are the regular operational and administrative mailings necessary in the conduct of the Department's business, and correspondence with individual farmers and other groups interested in and affected by agricultural programs.

To assure provision for any contingencies that may arise, the estimates include an unallotted reserve of $54,170 to provide for the costs of any unforeseen mailing requirements incident to carrying out the programs of work of the Department. Good management dictates the maintenance of a small reserve of this kind to meet unforeseeable contingencies as the year progresses.

SUMMARY STATEMENT OF PENALTY MAIL ESTIMATE, 1949

Bureau or Agency	Appropriation, 1947	Estimate, 1948	Budget Estimate, 1949	Increase (+) or Decrease (-) 1949 Compared with 1948
Office of the Secretary	2,603	3,573	3,840	+ 267
Office of the Solicitor	1,979	2,696	2,900	+ 204
Office of Information	46,551	68,200	73,315	+ 5,115
Library	2,698	3,375	3,630	+ 255
Bureau of Agricultural Economics	241,681	320,000	344,000	+24,000
Office of Foreign Agricultural Relations	1,745	2,000	2,150	+ 150
Extension Service	725,120	1,000,000	1,075,000	+75,000
Agricultural Research Administration:				
Office of Administrator	221	400	430	+30
Office of Experiment Stations	462	780	840	+ 60
Bureau of Animal Industry	22,887	26,160	28,120	+1,960
Bureau of Dairy Industry	1,126	1,500	1,615	+115
Bureau of Plant Industry, Soils, and Agricultural Engineering	5,961	8,900	9,700	+800
Bureau of Entomology and Plant Quarantine	11,472	14,300	15,375	+1,075
Bureau of Agricultural and Industrial Chemistry	2,207	3,700	3,980	+280
Bureau of Human Nutrition and Home Economics	749	950	1,020	+70
Forest Service	32,838	46,000	49,950	+3,950
Soil Conservation Service	42,237	50,000	57,250	+7,250
Production and Marketing Administration (including agricultural conservation program, Marketing Services, Section 32, and other programs administered by this administration)	1,164,645	1,574,610	1,692,700	+118,090
Commodity Exchange Authority	891	2,500	2,690	+190
Federal Crop Insurance Corporation	42,130	52,000	52,000	- -

(Continued on next page)

SUMMARY STATEMENT OF PENALTY MAIL ESTIMATE, 1949 (Continued)

Bureau or Agency	Appropriation, 1947	Estimate, 1948	Budget Estimate, 1949	Increase (+) or Decrease (-) 1949 Compared with 1948
Farmers' Home Administration	182,809	210,000	230,750	20,750
Rural Electrification Administration	13,587	21,000	22,575	1,575
Farm Credit Administration	10,742	20,000	20,000	- -
Reserve for contingencies	- -	53,356	54,170	814
Total	2,557,341	3,486,000	3,743,000	262,000
Unobligated balance	628,659	- -	- -	- -
Total appropriation or estimate	3,186,000	3,486,000	3,748,000	262,000

STATEMENT OF ESTIMATED OBLIGATIONS, 1949, BY MAJOR CATEGORIES

Bureau or Agency	Category 1	Category 2	Total Estimated Cost, 1949
	Farmers' bulletins, market and crop reports, leaflets, technical and other publications (printed or processed)	Billings on loans, crop reporting schedules, notices to farmers, correspondence, forms and regulations and other operational and administrative mailings	
Office of the Secretary	---	$3,840	$3,840
Office of the Solicitor	---	2,900	2,900
Office of Information	$71,060	2,255	73,315
Library	350	3,280	3,630
Bureau of Agricultural Economics	148,350	195,650	344,000
Office of Foreign Agricultural Relations	1,880	270	2,150
Extension Service	358,330	716,670	1,075,000
Agricultural Research Administration			
Office of Administrator	45	385	430
Office of Experiment Stations	450	390	840
Bureau of Animal Industry	278	27,842	28,120
Bureau of Dairy Industry	1,030	585	1,615
Bureau of Plant Industry, Soils, and Agricultural Engineering	2,400	7,300	9,700
Bureau of Entomology and Plant Quarantine	1,800	13,575	15,375
Bureau of Agricultural and Industrial Chemistry	520	3,460	3,980
Bureau of Human Nutrition and Home Economics	100	920	1,020
Forest Service	7,500	42,450	49,950
Soil Conservation Service	4,350	52,900	57,250
Production and Marketing Administration (including agricultural conservation program, marketing services, Section 32, and other programs administered by this Administration)	347,470	1,345,230	1,692,700
Commodity Exchange Authority	940	1,750	2,690
Federal Crop Insurance Corporation	19,500	32,500	52,000
Farmers Home Administration	6,900	223,850	230,750
Rural Electrification Administration	10,500	12,075	22,575
Farm Credit Administration	5,000	15,000	20,000
Reserves for contingencies	a/ 14,000	a/ 40,170	54,170
Total	1,002,753	2,745,247	3,748,000

a/ Distributed on the proportionate relationship which the totals of categories 1 and 2 bear, respectively, to the total of the proposed appropriation.

RESEARCH AND MARKETING ACT OF 1946

Appropriation Act, 1948	$9,000,000
Budget estimate, 1949	19,000,000
Increase, 1949	+10,000,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase
1. (Title I, Sec. 9) Payments to States for research into the basic laws and principles relating to agriculture in its broadest aspects conducted by the State agricultural experiment stations	- -	$2,500,000	$5,000,000	+$2,500,000(1)
2. (Title I, Sec. 10a) For utilization research on the development and application of present, new and extended uses of agricultural commodities and products conducted by the Department of Agriculture in its own laboratories or under contracts with public or private agencies	- -	3,000,000	6,000,000	+3,000,000(2)
3. (Title I, Sec. 10b) For agricultural research, other than utilization research, conducted by the Department of Agriculture, in cooperation with the State experiment stations and other agencies	- -	1,500,000	3,000,000	+1,500,000(3)
4. (Title II) For research and service work on the distribution and marketing of agricultural products, including preparation for market, processing, packaging, handling, storing, and transportation, conducted by the Department of Agriculture or by the Department in cooperation with public or private agencies by allotment of funds or by contract	- -	2,000,000	5,000,000	+3,000,000(4)
Total appropriation or estimate	- -	9,000,000	19,000,000	+10,000,000

GENERAL STATEMENT ON INCREASES

In view of the broad scope of work provided for under this Act, the provision made for the development of the program based upon recommendations of advisory committees, the requirement that the work be carried out in cooperation with State and private agencies, and the need for flexibility in order to make the research and service functions fully effective, it is necessary to deviate somewhat from the usual budget submission as was pointed out in connection with the presentation of the 1948 estimate for this item. The provision in the Act for obtaining advice and counsel from representatives of farmers and industry is a unique mechanism for the Government to get program direction from the public. In lieu of enumerating a detailed list of individual projects proposed for 1949 with appropriate justification for each, as is the procedure generally followed, the justification comprises a general appraisal of the agricultural situation related particularly to research needs, some examples of the type of research projects it is believed should be undertaken in 1949, and a complete statement on the development of the 1948 program to date, including a detailed listing of approved research projects being initiated.

Objectives for Agriculture

First of all, an agriculture is needed that will supply the kinds and quantities of agricultural products to meet our needs. In return, farmers should receive fair prices and income parity with the returns of those in other fields of work who make comparable contributions to the general welfare. Greater efficiency in both production and distribution is essential for the benefit of both producers and consumers, in order to improve standards of nutrition and progressively better living standards, with farm families sharing in the general improvement. It is necessary to assure wise use of our agricultural resources -- our productive land, water supplies, and our forests -- so that these resources will be permanently useful. The attainment of greater efficiency in production will make possible wiser use of our resources, as less land, water, etc., will be required for the production of needed agricultural products. In short, the objective of American agriculture is an organized, sustained and realistic abundance.

Agricultural Outlook

Since the status of American agriculture is so directly affected by world conditions, changes in the world picture are felt virtually over night by American farmers. A year ago there was the definite possibility of some surplus of U. S. farm products existing today, instead of the shortage of virtually all agricultural products, tobacco, fresh fruits and vegetables seasonally, and dried fruits being the principal exceptions. Now with the rather definite possiblity of a realief feeding program in war devastated areas, it appears more likely that there will be no general surpluses of major farm commodities in the immediate future, but that when surpluses develop they will most likely come more suddenly. As long as foreign demand continues high, more time will be afforded to learn how to manage apparent over-production which is likely to follow.

This points up the need for more research immediately to help cushion the effects of such a reduction in foreign demand when it occurs. New uses, reduced production costs, introduction of new plants, and improved marketing methods to meet the change must be developed and introduced to the fullest extent possible.

Going into the period of adjustment beyond the present emergency, research must play its part if the objective of a sustained, realistic abundance is to be achieved. An analysis made by the Department indicates that by supplying out present population with its reasonable wants and by allowing for reasonable amounts of industrial uses and exports, an outlet can be provided for more farm and forest production than is now being produced. The job would take more land than that now being used for crops, even assuming higher than present yields which appear to be in prospect. Such a production pattern would necessitate the placing of new emphasis on lievstock production and therefore on grass and legumes. If we are to have sustained abundance, we must learn how to distribute that abundance. This is a part of the job of meeting the objective of a sustained abundance. There is need to develop ways and means of balancing potential production and potential markets. In this way, agriculture can serve the general welfare to the fullest extent.

Measured in terms of the past, research can contribute much to increased efficiency. Three farm people can now produce more than four could produce just before the war. Efficiency would be a worthyobjective even if we had no hope of reaching the other goals.

Need for Additional Research in 1949

For agriculture to keep pace with other segments of the economy, in which research is playing such a tremendous part, there must be a constant addition to our sum of scientific knowledge and its translation into workable technology. Though science, farmers have learned to produce abundantly, but research that will reduce production costs must be vigorously continued so that more prople may enjoy the fruits of production. Through science, much has been learned about how to sustain production, but it is necessary to learn more and to apply our knowledge to a greater extent because on many farms production is still being maintained at the expense of our basic resources. Through science, some knowledge has been gained as to how to organize our abundance so as to make it realistic, but more must be learned if the complex problems of distribution are to be solved, production and distribution geared together, and provision made for widespread enjoyment of better living. A large supply of commodities is not of itself significant unless it is useful to the people generally.

Broadly speaking, improvements in our processes of distributing and marketing agricultural products have not kept pace with our ability to produce. To benefit fully from the presently possible and foreseeable advances in production, it is necessary to increase our knowledge of how to distribute that production more efficiently.

INCREASES

The increase of $10,000,000 to carry out the purposes of the Research and Marketing Act of 1946 (Public Law 733, 79th Congress) consists of the following:

(1) An increase of $2,500,000 for Payments to States for Research at State Agricultural Experiment Stations (Section 9, Title I)

Specific proposals for work in 1949 under Section 9 of the Act are not available and will not be available until the State experiment stations submit programs near the beginning of the new fiscal year on the use of Section 9(b)(1) and 9(b)(2) funds, and the Committee of Nine submits its recommendations for cooperative regional projects under Section 9(b)(3).

It is expected that a continuing high percentage of the funds will be used for marketing research projects with an intensification of work begun in 1948, and that the work will be broadened to include commodities for which funds were not available in 1948. A major part of the direct grants will probably be used in support of regional research projects. The need for a strongly integrated attack on a few problems in order to secure results as quickly as possible has limited the projects that can be undertaken with regional funds to a small part of the large number proposed by the regional groups of States. Other projects will be undertaken when funds permit.

The following examples illustrate some of the major problems that will receive attention:

Marketing Research

Cotton.--Continued growth of one-variety cotton communities requires changes in buying methods based on quality. Study is needed of the influence of mechanical harvesting and its effect on ginning methods, and of physical properties of cotton varieties in relation to mill and processor requirements. Improvements in methods of supplying cotton to mills and ways of reducing costs of marketing and increasing incomes to producers will be sought.

Fruits and vegetables.--Additional consumption of fruits and vegetables would improve diets. Waste and spoilage is unnecessarily high and quality and condition is often poor. Greatly expanded use of motor trucks, roadside stands, new packages, new products, and more cold storage present new problems requiring study with the object of making available optimum supplies of products of higher quality and food value at lowest cost consistent with profitable production and efficient handling.

Milk and dairy products.--Dairying involves 4 million farmers and provides one-fifth of the total U. S. farm income. Serious marketing and adjustment problems are resulting from wartime expansion of 15 percent in milk production. Research will be directed to help absorb potential milk supplies, bring consumption more in line with nutritional needs, and reduce high costs of distribution.

Livestock and livestock products.--Research on the possibilities of marketing slaughter cattle, lambs, and hogs by the actual yield of the carcasses as compared with the present method of selling on the hoof will be carried on in response to requests of farmers, farm organizations, and livestock marketing agencies. The expansion of locker plants from 200 in 1935 to 10,000 at present calls for study of the effects of channels of meat distribution, meat consumption, and consumer food habits.

Poultry and eggs.--The major problems needing investigation are related to the all-time high levels of egg production reached during wartime, high seasonal production, loss of quality in eggs and poultry meat, and the rapid spread of direct marketing by producers. Lower marketing costs and improvement in market quality would benefit producers and consumers.

Potatoes.--Wartime production increases and the possibility of recurrence of large crops at intervals presents a problem of adjustment and disposal of surpluses. Improvements in marketing practices, including continuous supplies of high-quality potatoes in convenient consumer packages, should help to increase consumer demand and stabilize production. Reduction of spoilage in the marketing of early potatoes should lead to lower costs and narrower margins.

Research other than Marketing

Cotton breeding and mechanization.--Genetics has not been applied to the improvement of cotton to the same extent as for other crops. The possibilities of transferring desirable properties from wild cottons to increase insect and disease resistance and develop new types for new uses warrants thorough study. Research directed to the further mechanization of cotton production, including seeding, weed and grass control, insect and disease control, defoliation, and harvesting should lower production costs and raise the economic status of cotton farmers and workers.

Foods and human nutrition.--The rejection by military medical examiners of 25 percent of the 18-19 year-olds largely due to malnutrition has brought the urgent problems of food habits, nutritional deficiencies, and more adequate diets to public attention. Better measures of good nutrition, and of nutrient requirements as affected by age, physiological status, diet, and racial background are needed. Information gained through studies of selected population groups, including influence and adequacy of the school-lunch program should provide a sounder basis for dietary recommendations.

New crops for industrial and other uses.--Research to promote the discovery, introduction, testing, and breeding of new and useful agricultural plants offers possibilities of providing new sources of materials for industrial uses, and for alternate uses of land now in crops that may be in excess supply. Disease resistance, winter hardiness, and other characters needed for the improvement of crop plants can often be secured only by the introduction of varieties from other countries.

Newcastle disease of poultry.--Newcastle disease, now known to occur in 31 States, presents a serious threat to the poultry industry. Cooperative research will be directed to determining means of spread, most accurate methods of diagnosis, treatments to bring about recovery, and the development of an effective vaccine.

Rural housing and farm structures.--Farm housing affects the safety, health, economic welfare, and future stability of every farm family. Many farm houses are in poor condition and otherwise inadequate. Improvements and new construction to be undertaken on a large scale can be aided by studies of housing needs, materials, simplified construction methods, and design of equipment and facilities for low cost. Farmers need low cost, efficient farm buildings that will reduce present high initial investment, labor requirements, and maintenance costs. New methods of housing, management, and hay handling for dairy cows in relation to quality of milk produced will receive early emphasis.

Beef cattle, dairy and poultry breeding.--The importance of beef in the American diet has been demonstrated by the insatiable demand for meat. With the certainty of a marked increase in population it appears doubtful that present methods of beef production will be able to supply the volume of high-quality beef demanded by consumers. Consequently, studies should be undertaken to develop breeding methods and selection procedures which will result in beef cattle capable of high productive efficiency and superior qualities of products.

Dairy cattle.--Sterility and reproductive troubles in dairy cattle cost dairymen in the United States an estimated $250,000,000 annually. Too little attention has been given to the study of these problems in the past. Experimental work is needed on the inheritance of various factors that may be associated with reproductive difficulties as well as a thorough study of the relationship of nutrition, physiology, management and other factores. Another major loss is the large number of cows that turn out to be low and unprofitable producers. With the widespread use of artificial insemination there is increasing demand for more information that will help to reduce the uncertainties in breeding and to develop more accurate ways of choosing young bulls.

Poultry.--Poultry breeders have made noteworthy progress in developing high egg production, many flocks averaging annually 200 or more eggs per bird. Beyond this little improvement has been made in breeding for high viability, market quality, and economy of meat and egg production. More work is needed on the evaluation of breeding methods and use of inbred strains for the production of hybrids, crossing standard breeds, and more rigorous application of family selection. The problems involved are complex and too expensive to be undertaken by private breeders or a single research institution. Work in this field is planned on a cooperative basis between a number of State experiment stations and the Department.

(2) An increase of $3,000,000 for Utilization Research (Section 10a, Title I)

Although edible crops in general offer the greatest return to farmers when they are used for food purposes, research on the development of new methods for the industrial processing of edible crops for non-food uses, or for new food and feed uses, and research on the development of new and expanded uses of cotton, tobacco, wood, and other non-food agricultural products, is essential to full National utilization of agricultural resources. The results of such research provide not only new outlets for agricultural products but also for the disposal of surplus, cull, and otherwise unsalable raw material and also of wastes normally discarded in processing operations. In addition, research and eduction in consumer use of non-food products is badly needed. Consumer requirements in cotton and forest products, for example, would help guide the work on the improvement of these products.

A list of items on which knowledge is needed in order to expand the markets for our farm commodities would be almost without end. However, a few examples of the more important problems, and some research aims under each follow:

1. Cereal grains -- A more efficient separation of the oil fraction from the rest of the corn in dry milling. Improving the steep in wet milling of corn. Production of zein fiber from corn. Better separation of the fractions of milled wheat and wider utilization of those parts less suited to food use. Improving the wet milling of sorghums.

2. Agricultural residues -- Development of economical methods of collection and processes and equipment to convert residues into fiber board, paper, and other products. Chemical conversion of residues to useful industrial production. Application of fermentation techniques in conversion of xylose, a sugar from residues, into industrial solvents or motor fuels.

3. Fruits and vegetables -- Improving present methods of preserving, and exploring entirely new methods. Development of attactive, nutritious food products from culls and other materials not sold in the fresh food market.

4. Poultry products -- Better freezing methods and storage conditions for poultry. Determining the effect of pre-freezing treatments on table quality of fowl and the effect of freezing and thawing. Better protection against "freezer burn." Improvement in quality of dried eggs. Determine whether feathers can be used well in fabrics, whether other wastes from poultry packing plants may be useful in animal feeds, and how they may be economically converted for such purposes; whether liquid eggs can be used as the culture medium for biologicals used in prevention or treatment of diseases; whether use can be found for eggs rejected in hatchery operations.

5. Cotton --More fundamental information is needed on the physical and chemical characteristics of cotton fibers so as to determine best end uses and to produce fibers suited to uses not now open to cotton. Develop more efficient methods of finishing to increase resistance to water, fire, wear, and creasing. Finding new uses for low grade and short staple cotton which is often a drug on the market. Developing mechanical processes and equipment for lowering cost, thus leading to a more competitive position. Improving methods of handling and storing cottonseed.

6. Fats and Oils -- Improving oilseed processing methods with special attention to solvent extraction. Learning more about stabilizing edible oils. Modification of domestic oils to meet special industrial requirements now met by imported oils. Further developing fibers, adhesives, and other products from oilseeds, and learning how to eliminate toxic effect of cottonseed and tung oil meals in animal feeds.

7. Forest products -- Finding profitable uses for low quality and defective trees and unpopular species often found in farm woodlands as well as for the substantial proportion of the wood that is now wasted in processing. Developing better methods of handling farm and other timber and utilizing it on the farm and in the local community.

8. Tannins -- Development of satisfactory substitutes for chestnut as a source of tanning material with special attention to canaigre and sumac, which can be grown on lands unsuited to most crops and which may provide an attractive new agricultural industry. Also developing new tanning methods.

9. Tobacco -- More efficient methods of extracting nicotine and development of uses of compounds produced by new extraction methods. Determining the chemical and physical characteristics of tobacco that control quality.

10. Dairy Products -- Improving the keeping quality of dried whole milk. Improvement of practices for aging ice cream mix, processing of butter and establishing of experimental cheeses. Finding new uses for skim milk and whey in food and industrial products. Learning more about fundamental properties of proteins from milk as a basis for applied reasearch and ultimate utilization. Improving the yield and purity of lactose. Development of methods that will increase the yield of lactic acid as a basis for extending its uses in plastics and other industrial products.

11. Human Nutrition -- That this is probably one of the most important fields was dramatized recently by a member of the National Advisory Committee in an article which he wrote for a magazine under the title "We Feed Our Hogs Better Than Our Children." New industrial uses are of interest to all; they carry a dramatic quality and are sometimes financially important. However, the most profitable use of any edible product must not be overlooked--use of the product as human food. Undoubtedly, the unfilled

demand for food which includes the improvement in diet envisioned in a program of abundance, offers the greatest opportunity for expansion of markets for American farm production. To a large extent, the limit is purchasing power. But it is not the only limit. Often, people who have adequate incomes do not buy enough of the kinds of food their bodies need because they have poor food habits or lack the knowledge for good nutrition.

The science of nutrition itself is new and needs rapid development so that it can ssrve us more fully as a policy guide. And more educational work is necessary to keep people abreast of the scientific findings and for giving consumers the basis for changing their food habits where necessary to insure use of the best and most economical diets.

Further research in nutrition offers many important possibilities in the development of programs to effectuate a policy of abundance. It offers a basis for improving the national food supply through action by farmers. This will become more important as consumers give more weight to nutritional value in choosing their purchases.

Farmers can respond not only by adjusting the volume of output of various crops but also by selecting varieties of crops, using farm practices, and adopting methods of harvesting and handling which improve the nutritional value of their products. Research is also needed to broaden our understanding of what constitutes an adequate diet, to assist in the location of the under-consuming groups, to devise effective methods of encouraging desirable food habits and marketing methods. Included is the need for periodic collection and analysis of statistical information on levels of consumption and factors affecting them. Also there is need for more knowledge about the nutritional requirements of individuals in various age groups and doing various kinds of work.

(3) An increase of $1,500,000 for Research Other than Utilization (Section 10b, Title I) -

To follow a policy of abundance, production of adequate supplies must be profitable to farmers. Profits to farmers from their production is dependent on volume, price, and COST. This means that ways of further cutting the cost of producing farm products must be sought.

A study by the Texas Agricultural Experiment Station indicated that at 1943 prices, costs of producing cotton in that State ranged all the way from 19.4 cents down to less than 4 cents. Part of the difference was due to physical conditions. Nevertheless, some types of mechanization and larger scale operations, combined with other improved practices, can be adapted to most cotton areas and would reduce costs.

Meat and milk, fruits and vegetables have definite possibilities of market expansion if they can be sold at prices proportionate to consumer purchasing power. Expansion in the production of these products would promote improved diets. The shift toward more meat and milk would aid in conservation of resources by providing a need for more

grass and legumes. If costs of producing meat, milk, fruits and vegetables can be materially reduced, and especially if distribution margins can be narrowed at the same time, larger markets can be opened up. On the other hand, if attempts were made to make production more profitable by increasing prices, a part of the potential market would be cut off. These are commodities that consumers buy in larger or small quantities depending upon prices in relation to purchasing power.

The present status of agriculture is testimony to the progress we have made in reducing costs of production. An hour of work now, compared with 1920, results in about a third more milk, a half more corn, and more than twice as much wheat. Three measures of how much farmers cut costs per unit of production between the early 1920's and the early 1940's are as follows: (1) Costs were enough lower in the early forties to save farmers almost three billion dollars annually; (2) without the saving in costs, farm prices would have had to be 14 percent higher than they actually were to give farm operators the net income they had in 1942-44; (3) or without the saving in costs, the gross farm income of 1942-44 would have provided 26 percent less net income.

Between the early twenties and the early forties, farmers increased production per acre of cropland 23 percent, production per animal unit of breeding livestock 30 percent, and output per worker 64 percent. Farmers who are able to adopt a cost-reducing practice find protection against price reduction, but at the same time farmers who cannot adopt the practice find themselves at a serious disadvantage.

While further progress in cost reduction depends to some extent on general economic conditions and the use of knowledge already gained from research, by far the greatest opportunity for moving forward lies in more research.

A few of the opportunities for improvement through research are:

1. Mechanization and other labor-saving methods -- Research in enterprises still requiring a great deal of hand labor must be intensified. Crops needing special attention include cotton, tobacco, sugar crops, hay, and certain fruits and vegetables. In livestock production the dairy enterprise requires special attention. Reports from New Zealand indicate that on some farms one man milks and cares for as many as 70 cows and does all the routine farm work compared with only 20 cows cared for on a farm in the United States. Conditions there differ from ours, but it may be possible to greatly reduce the direct labor in producing milk.

2. Insect and disease control -- This is a continuing battle because new diseases and races or strains of disease organisms are being continually produced. Insects develop a tolerance for certain insecticides, and new insects continue to appear. In addition, we have not learned how to control some pests that are already with us.

3. Fertility and conservation practices — Better fertilizers adapted to different soils are badly needed as is a better understanding of crop requirements in different regions and the most economical level of fertilizer application under different conditions. Much further work is needed on ways of achieving soil conservation for alternative cropping systems in different locations and on various soils. Stability of production in many areas of varying climate requires information and development of methods for conserving water and productivity of the soil. Without information and carefully developed programs to reduce the hazards to a minimum, the whole economic system of many farming areas is unstable.

4. Plant breeding and nutrition — While a startling development such as hybrid seed corn is not common, steady progress can and should be expected in plant improvement including many new hybrid crops. One of our big needs is for improved pasture crops for the South that can be established and maintained at less cost than available types.

5. Animal breeding and nutrition — Results from limited experiments in controlled breeding of hybrid livestock are very promising and more information on this subject is needed. More basic information is needed on nutritional requirements for growth, fattening, reproduction and maintenance.

6. Cost and returns analysis — Comparisons of cost reduction methods used in various areas are essential as well as the possibility of reducing costs by better farm organization within an area. This requires analysis by type, size, and location of farms and by individual farm operations. With better data, the farmer will be able to tell which methods could be best adapted to his circumstances. The data must be available to keep up to date on our progress in cost reduction.

7. Capital requirements for changes in farming — The farmer who buys an expensive new machine needs to know, especially if he borrows the money, how soon the investment is likely to pay for itself. It almost always takes capital to adopt a cost-reducing practice, and that often means a financing problem.

8. Rural housing — Two-thirds of all farm families are ill-housed — not in the sense that they merely lack conveniences, but that they lack the commonest necessitites of twentieth century living. Two million farm homes are regarded as practically beyond repair. Another two million need major alterations to make them adequate for living. The remaining third are in reasonably good condition, although perhaps one-half are without modern facilities and conveniences.

More adequate research and educational work in functional requirements, design, construction, and in the economic and social aspects of rural buildings is urgently needed as many farmers are making plans to build, repair, and alter their homes.

(4) An increase of $3,000,000 for Marketing Research and Services (Title II).

Marketing research and services are urgently needed in three broad fields if the marketing and distribution system is to be geared to handle substantial abundance of production. The three broad fields are as follows:

1. Efficiency of operations -- More facts are needed regarding marketing facilities, costs and price spreads between producers and consumers to determine in what respects the maketing system is inadequate to move the volume of production that consumers demand and agriculture is able to produce. There must be increased knowledge to reveal where inefficiencies exist if unnecessary costs are to be eliminated and price spreads reduced.

2. Expanding Market outlets -- This problem deals with the question of where the potential demand for each product exists and how it can be met.

3. Improving the marketing and price mechanism -- This mechanism must be made a more effective instrument for reflecting demand and supply conditions and obtaining production and distribution adjustments to those conditions. Answers must be had for many of the basic questions as to why prices fail to reflect changes in supply and demand. Some of these are: What barriers are interfering? To what extent is waste or poor condition of product the cause? To what extent are high prices inhibiting demand?

Some of the more specific marketing problems falling within these three fields, which should be attacked by research, include:

Costs of distribution -- Research on the cost of distributing various commodities should be organized and carried through from producer to consumer for all functions and systems of marketing, for the purpose of determining which functions are entailing high costs, and where economies might be made, as a guide to future market development.

Quality improvement and conservation -- Research is required to determine methods and equipment needed to eliminate present losses in the quality of the product or even the product itself at each stage of the processing and distribution functions. Labor and other costs required to maintain quality may be reduced by the development of improved packaging, for instance, causing less breakage and deterioration. There is also the constant problem of whether the cost elimination will "pay off."

Merchandising -- Sound marketing depends upon knowing the consumer's needs and preferences. A careful examination should be made of the practices now used in the retailing of both fresh and processed commodities to determine how they can be made more satisfactory, so as to reflect a freer movement with less loss, waste, unnecessary services, and with qualities unimpaired.

Packaging and containers -- An appraisal is needed of all consumer packaging now used to indicate the best method for handling the natural freshness of commodities. The best kinds, sizes, and types of packages now used should be appraised, and where necessary, better packages developed to meet the conditions desirable for good merchandising. These should be standardized and reduced in number to a practical minimum.

Consumer education for more effective utilization and greater consumption of agricultural products -- Research is needed to determine consumer eating habits by regions, rural and urban groups, income groups and age groups in order to relate directly the marketing methods to consumer demand. The results would be compared with nutritional needs and made available to State agencies and the industry as an improved basis for educational and promotional work. These studies would indicate what can and should be done to endourage increased consumption of specific commodities.

Development of new and expanded market outlets -- Merely learning more about the weak points and strong points of the present marketing and distribution system will not be sufficient to support an abundant agriculture. The development of new and expanded market outlets for agricultural commodities is particularly important. This will require research, education and service efforts to increase nutrition knowledge, improve food habits, and decrease costs in distributing foods. If distribution costs can be reduced, and distribution margins narrowed at the same time, larger markets can be opened up. Another important aspect would be the possibility of a continued high rate of foreign demand.

Price, supply, demand relationships -- In some instances the only missing link is simple information as to supply and demand. More economic data and knowledge are needed regarding the factors affecting prices; the responsiveness of production to prices and other factors; price relationships with competing products; and consumer response to price change.

Terminal markets -- There is a need for accumulating and analyzing basic statistics and information indicative of the market system as it now operates. Such market appraisals are needed not only in order to suggest methods for reducing the time required to bring products to market, the excess use of labor, and the large loss of products, but also to compromise the conflicting interests of local governments, property owners, handers, labor and transportation agencies.

Transportation -- The greatest need in transportation is for better equipment, more care in handling and prompter service. Research is needed to develop improved refrigerator cars, other refrigeration facilities, and methods of handling. Service is needed so that producers and distributors understand the transportation requirements of the commodities to be distributed. The entire field of transportation costs, its composition and relationship to an efficient distribution of agricultural commodities is virtually untouched.

Grades and standards -- Inasmuch as new products are constantly being developed, and consumer preferences are not static, the characteristics of existing products may change resulting in a constant need for reviewing and revising present grades, standards of measurement, specifications, or promulgating new standards. This is essential if consumer preferences are to be adequately reflected and if producers are to receive prices commensurate with the quality of the products produced. The whole field of grades needs to be explored with a view to the establishment of a uniform system for all commodity groups which could be more easily understood by consumers.

Market news -- If the market news services are to be of maximum assistance to the farmer in determining the optimum time and place of sale, and to shippers, wholesalers, and others in determining supply-demand conditions on specific markets for commodities in which they are interested, the adequacy, accuracy, and timeliness of market news must be continually reviewed. Adjustments should be made as required in order that market reports will accurately measure market statistics and be as reliable, as complete, as useful, and as sensitive to changes in market conditions as is practicable to make them. There is also the constant question of extending market news to cover additional commodities and markets, and to include additional types of information.

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored):

> To enable the Secretary to carry into effect the provisions of the Act of August 14, 1946 (Public Law 733) as amended by the Act of July 31, 1947 (Public Law 297), * * * Provided further, That the Secretary may make available to any bureau, office, or agency of the Department such amounts from this appropriation as may be necessary to carry out the functions for which it is made (but amounts made available to the Office of the Secretary, Office of the Solicitor, and Office of Information shall not exceed those which the Director of the Bureau of the Budget, after a hearing thereon with representatives of the Department, shall determine), and any such amounts shall be in addition to amounts transferred or otherwise made available to other appropriation items of the Department: * * *

The first change in language inserts appropriate reference to the Act of July 31, 1947 (Public Law 297) which amended the Research and Marketing Act of 1946 to provide that not less than 20 percentum of the funds appropriated under Section 9(a) of Title I, instead of 20 percentum of the funds authorized to be appropriated, shall be used by State agricultural experiment stations for conducting marketing research projects.

The second change in language provides that any amounts which may be made available to the Office of the Secretary, Office of Information, and the Office of the Solicitor for carrying out any functions assigned to such offices in connection with the Research and Marketing Act of 1946 shall be determined by the Director of the Bureau of the Budget.

ITEMIZATION OF ESTIMATES

Appropriation: Research and Marketing Act of 1946

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates 1949	Increase (+) or decrease (-)
Appropriation or estimate	$9,000,000	$19,000,000	+$10,000,000
Transferred to "Research on agricultural problems of Alaska"	10,460	20,920	+10,460
Total obligations	8,989,540	18,979,080 1/	9,989,540

Obligations by Objects

Standard Classification				
01	Personal services	3,244,238	7,100,000	+3,855,762
02	Travel	336,084	475,000	+138,916
03	Transportation of things	51,795	100,000	+48,205
04	Communication services	37,865	60,000	+22,135
	Penalty mail	8,968	15,000	+6,032
05	Rents and utility services	34,930	100,000	+65,070
06	Printing and binding	19,107	100,000	+80,893
07	Other contractual services	1,443,076	2,600,000	+1,156,924
08	Supplies and materials	350,855	550,000	+199,145
09	Equipment	725,382	1,200,000	+474,618
10	Lands and structures	322,700	1,850,000	+1,527,300
11	Grants	2,414,540	4,829,080	+2,414,540
	Grand total obligations	8,989,540	18,979,080 1/	+9,989,540

1/ Note: Since the details of the individual projects or fields of work, and the cooperative relationships thereon for fiscal year 1949 are yet to be worked out it is not possible at this time to estimate with any degree of accuracy a breakdown of proposed expenditures by objective classification for fiscal year 1949. For the purposes of these estimates, however, the summary schedule appearing above reflects the best judgment as to how the amounts recommended for appropriation might be distributed by object of expenditure in 1949. Due to the nature and complexities of the program this distribution should be considered as a rough approximation only and subject to change as the program develops and working relationships between cooperating agencies on individual projects or lines of work become more clearly defined.

PROGRAM DEVELOPMENTS UNDER THE RESEARCH AND MARKETING ACT

During the first year after passage of the Act a concrete program was developed under which work was initiated after funds were appropriated for that purpose for fiscal year 1948. Program development passed through a number of stages. Several months were spent in consultation with many groups interested in the Act, bringing to their attention its content and significance and seeking their cooperation and their ideas on the most effective ways of carrying it out.

Advisory Committees Appointed

National Advisory Committee - As provided for in the Research and Marketing Act the appointment of the National Advisory Committee which is composed of eleven members (six being farmers or their representatives) was appointed by the Secretary. Committee of Nine representing the directors of the State agricultural experiment stations was established. This represented the start of positive program planning work for 1948. In the first meeting the National Advisory Committee emphasized the potentialities of the Act for achieving profitable utilization and wide distribution of a high level of agricultural production. It emphasized likewise the importance of having broad participation in the planning in order that a coordinated and practical program would be developed. To achieve that, it recommended the appointment of a number of commodity and functional advisory committees to include representatives of producers, industry, government and science.

Experiment Station Committee of Nine - The Committee of Nine working with regional associations of experiment station directors determined upon a list of fields of work to be included in the initial program of regional research. They initiated a series of regional and interregional meetings of experiment station workers for the development of the cooperative programs in these fields. Representatives of Department agencies likewise participated in these meetings, and consulted with the State people on research work that could be more effectively conducted with close Federal-State cooperation. Representatives of industry also participated.

Producer-and-Industry Committees - On December 27, 1946, the Secretary appointed an Administrator of the Research and Marketing Act of 1946 who was given responsibility for program development under the Act. Under his supervision and with the advice of the National Advisory Committee in later meetings, twenty commodity advisory committees and a transportation advisory committee composed of non-governmental representatives were appointed. All but one of these committees met during the spring months of 1947. Charts Nos. I and II which follow show the committee structure and the various commodities and functions represented by advisory committees.

Executive secretaries were appointed from the Department of Agriculture to work with the committees. Each producer-industry advisory committee had as its governmental counterpart a working group composed of specialists representing Department agencies and State Departments of

Agriculture and State experiment stations. These working groups drafted statements for use by the commodity and functional advisory committees which summarized the problems in each field and outlined current research and service activities and indicated as a basis for discussion additional work which the Department believed to be needed for dealing with these problems.

After considering reports presented by the working groups, the commodity and functional advisory committees developed specific program recommendations, including relative priorities for different lines of work. These reports were distributed to interested agencies and officials in the Department, to the National Advisory Committee, and to all State agencies for information and comment. They were likewise made available to the public.

Summary of Program Development

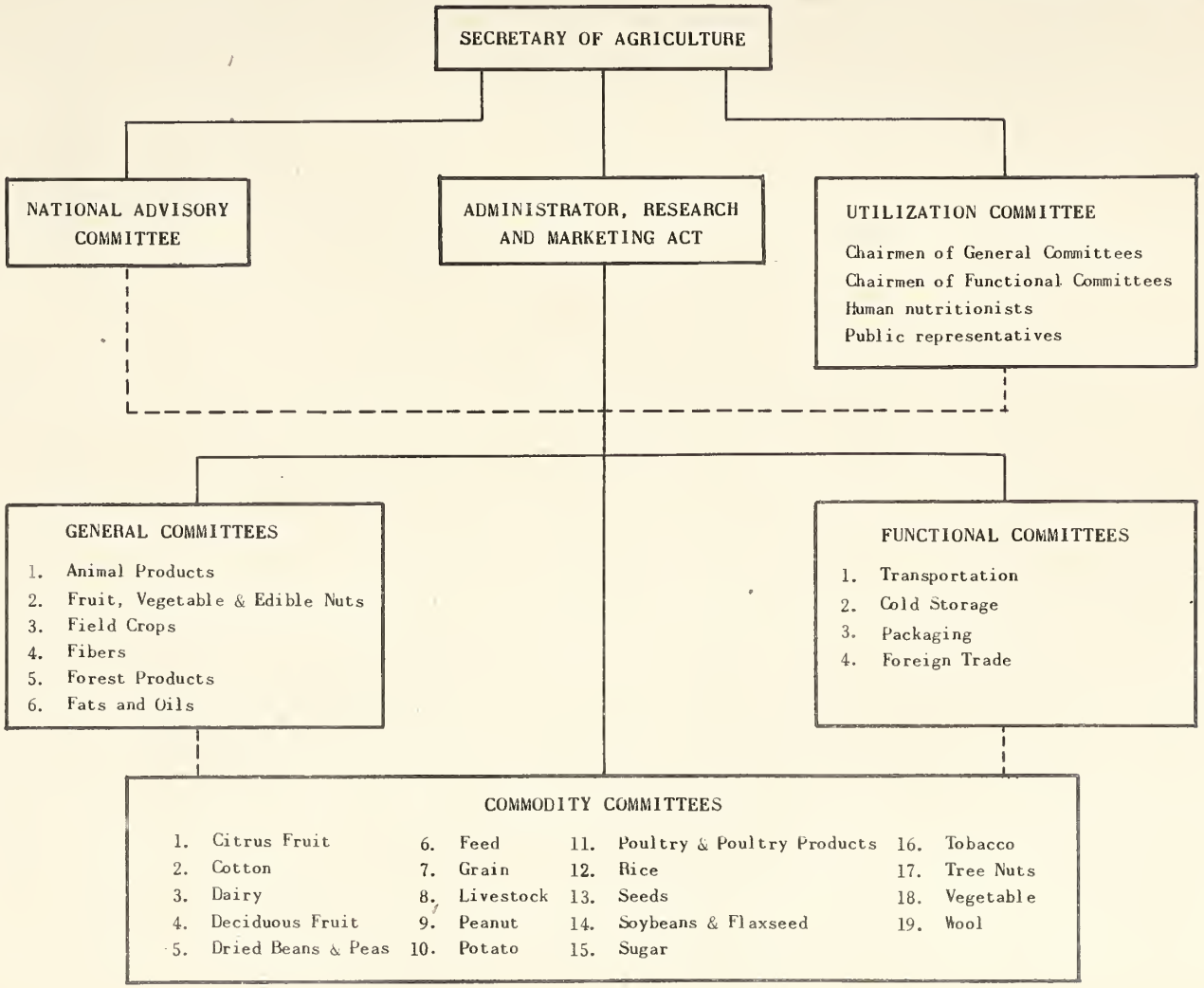
Proposals were developed for specific projects to be carried on under the Act from the following sources of material:

(a) Advisory committees, outlining commodity and functional programs.
(b) Department working groups, outlining similar programs in all fields including those not covered by advisory committees.
(c) Experiment Station Committee of Nine, recommending the regional research program, including Department cooperation in regional projects.
(d) State departments of agriculture and departments and bureaus of markets, State extension services, and State agricultural experiment stations, proposing specific projects and Departmental cooperation.
(e) Numerous suggestions, requests, and specific proposals received from private organizations, agencies and individuals.
(f) Specific projects developed by the staff of agencies of the Department.

Program Determination

From the specific project proposals and other available material a program for fiscal year 1948 was outlined and presented to the National Advisory Committee. Revisions in the program were made in the light of the committee's recommendations. It is on the basis of these recommendations that individual projects were given final review and funds allotted for initiation of work. The manner in which the 1948 program was formulated is graphically presented in Chart No. III which follows.

ADVISORY COMMITTEES UNDER
RESEARCH & MARKETING ACT OF 1946

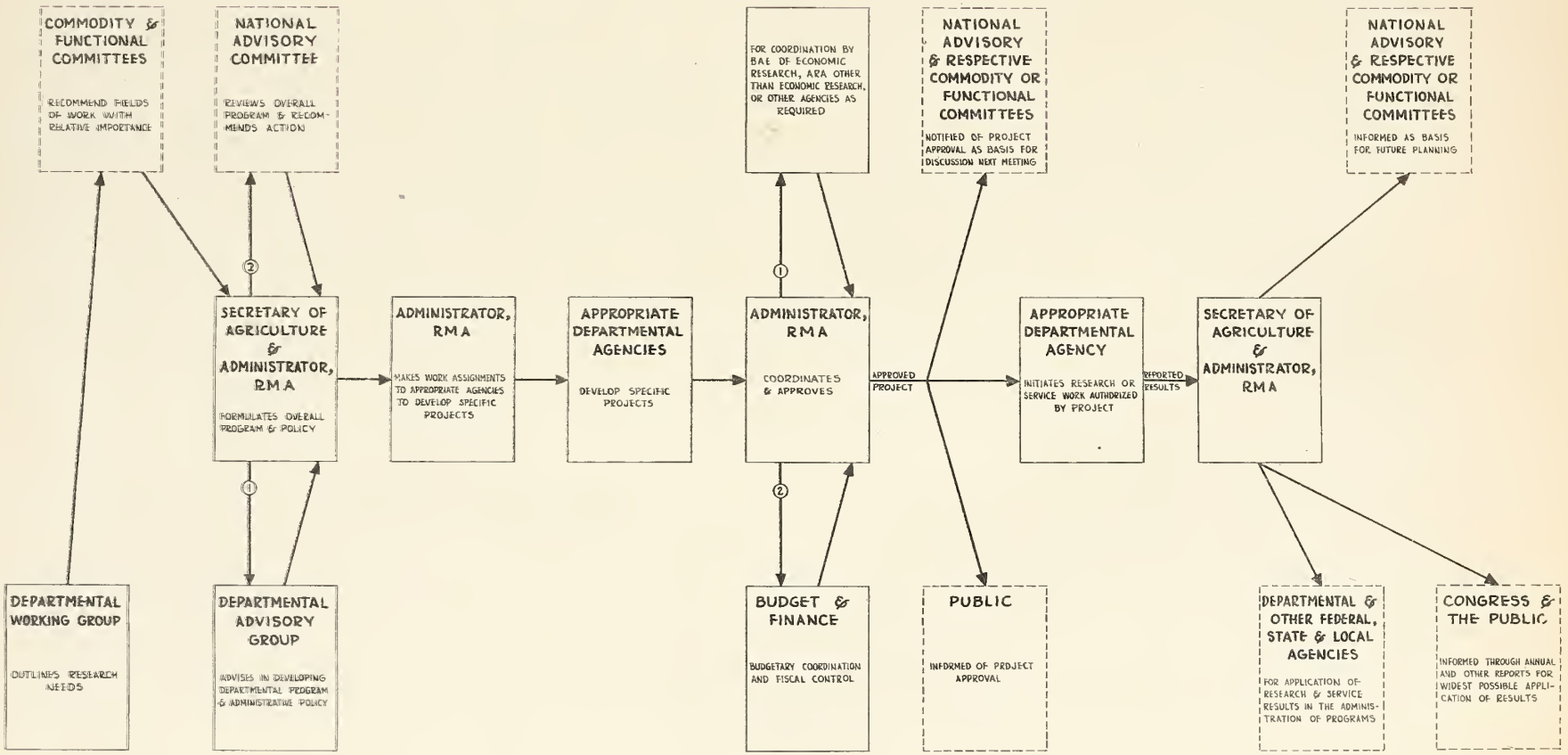


9-25-47

Chart III

U. S. DEPARTMENT OF AGRICULTURE

PROCESS FOR DEVELOPING, COORDINATING AND APPROVING RESEARCH AND MARKETING ACT PROJECTS



Title I- Sec. 9(b)1 and 9(b)2 funds are paid to the States in accordance with the formula of the Act and Sec. 9(b)3 funds for regional projects are paid based on recommendations of the nine-man Committee, and approved by the Secretary.

——— DEPARTMENTAL AGENCIES AND ACTION
– – – – – OUTSIDE THE DEPARTMENT

PREPARED IN OFFICE OF ADMINISTRATOR FOR RESEARCH AND MARKETING ACT

Program Policies

A number of principles have guided selection of the work to be undertaken. First, those new lines of activity within the various fields of work offering real possibilities of dividends to agriculture should be undertaken immediately. Second, a proper balance should be maintained between basic research, applied and developmental research and service work in support of the research program. Third, efforts should be concentrated to do an effective job in the fourteen selected fields rather than scattered in superficial attempts to do something on a multiplicity of different problems.

Participation by State agencies is provided for and encouraged. Contracts with public and private agencies are being undertaken whenever this will expedite the program, and when the work can be performed more effectively or at less cost. Projects authorizing the conduct of research and service work by contract involving approximately $1,000,000 have been approved.

Organization for Carrying out the Program

An Office of Administrator, Research and Marketing Act, has been established. The Administrator exercises general oversight over the whole program, and also has special responsibility for the supervision of marketing work throughout the Department and for coordination of marketing with production, education, and research activities. The Administrator has a staff of five specialists who assist him in the development, review, and over-all administration of the research and service programs under the Act. They also serve as executive secretaries to the non-governmental commodity and functional advisory committees. The fields in which these five specialists work are as follows:

1. Grains, feed, seed, rice, beans and peas, and forest products.
2. Fruits, vegetables, potatoes, and tree nuts.
3. Cotton, sugar, fats and oils, and tobacco.
4. Livestock, wool, dairy and poultry.
5. General functional or cross-commodity programs.

Steps have likewise been taken during the year to deal with a number of subsidiary problems raised by the Act. It early became apparent that proper integration of the new program would require even more extensive coordination, both of research and marketing services, than the existing organization of the Department provided. At the same time, the need for close integration of the new work with that already being carried on, the benefits to be gained from experienced personnel and economy in the use of existing facilities, made it undesirable to establish separate, completely new agencies for conducting the research and service work.

The Agricultural Research Administrator has been given responsibility for coordination of all research (except economic research) throughout the Department, the Bureau of Agricultural Economics having over-all responsibility in the economic field. To facilitate Federal-State cooperation in research, the chief of the Office of Experiment Stations has been made an Assistant Administrator of the Agricultural Research Administration.

On the marketing side, a separate Assistant Administrator for Marketing has been established within the Production and Marketing Administration. He will be responsible for supervision of all marketing research and service work in that agency. A new Marketing Research Branch reporting directly to him will be a focal point for the marketing research program within the Production and Marketing Administration.

Content of the Program

The research and service program developed under the Act places particular emphasis on development of new and extended uses of agricultural products, especially those like cotton, potatoes, citrus fruit, and nonfat dry milk solids for which future surpluses are likely to develop. Funds earmarked for utilization research in Section 10(a) of the Act is being used chiefly for additional laboratory and pilot plant investigations of new and improved processed products and, especially industrial uses for agricultural raw materials.

In addition to the funds which are earmarked for marketing research and service by Title II of the Act, funds available for general research in cooperation with State experiment stations are being used for marketing research. Accordingly, funds provided for marketing research and services under Title II are being used, in the main, for marketing services. These include: (1) market development work in cooperation with State agencies, including especially programs for fuller distribution of seasonal surpluses through regular marketing channels; (2) improvement of marketing facilities and of methods and equipment for handling products more efficiently in such facilities, including assembly and terminal markets and storage and transportation facilities; and (3) detailed analysis of marketing efficiency and means of reducing costs. Basic research is being conducted on consumer preferences, grades and standards, and on consumer education and market information. Work is also be undertaken in connection with processing, conditioning, and packaging of various commodities to reduce waste and increase salability. Under the regional research program, the experiment stations are concentrating on cooperative studies of commodity marketing problems.

On research other than utilization and marketing under Sections 9 and 10(b) of the Act, the Department and the States are giving particular emphasis to farm mechanization, to research on insect and disease control, to new developments in animal breeding, and to the introduction and development of new plants.

In addition to this work, provision is being made, both at the Federal and at the State level, for an intensified program of nutritional research, for research on farm buildings, for fundamental studies of cotton breeding and genetics, for introduction of new crops for industrial use and for work in several other fields.

ESTIMATED OBLIGATIONS BY LEGISLATIVE AUTHORIZATION AND PROJECT, 1948

Title I, Sec. 9 - Payments to States for Research at State Agricultural Experiment Stations

I.	Marketing research	$ 960,000
II.	Research other than marketing	1,465,000
	Administration by Office of Experiment Stations	75,000
	Total	2,500,000

Title 1, Sec. 10a - Utilization Research

I.	Developing new and improved uses of agricultural commodities	$2,297,500
II.	Improving human nutrition and extending food uses of agricultural commodities	175,000
III.	Preservation and improvement of quality and prevention of spoilage in agricultural commodities between producer and consumer	437,500
	Over-all administration	90,000
	Total	3,000,000

Title 1, Sec. 10b - Research other than Utilization

I.	Development of new and more profitable uses of resources of manpower, soils, water, plants and animals	$ 538,000
II.	Reducing hazards and risks in agricultural production	412,000
III.	More efficient and satisfactory use of farm buildings, farm houses, farm machinery, and power	280,000
IV.	Improving the marketing of agricultural commodities	225,000
	Over-all administration	45,000
	Total	1,500,000

Title II - Marketing Research and Services

I.	Developing new market information and basic data	276,000
II.	Developing new and expanded market outlets	419,300
III.	Reducing marketing costs and margins	185,500
IV.	Developing new standards and grading to improve marketability of farm products	206,500
V.	Improving marketing methods, facilities and equipment	401,200
VI.	Developing new processing and packaging techniques to minimize waste and increase salability	226,000
VII.	Analyses of demand and consumer preferences for agricultural products	205,500
	Over-all administration	80,000
	Total	2,000,000

Program Tables - There is set forth below a list of supplementary tables which include detail and overall summaries of work being performed in fiscal year 1948 under the Act:

Table 1 - Allocations by Agency, Fiscal Year 1948.

Table 2 - Allocations by Commodities, Fiscal Year 1948.

Table 3a - Research at State Agricultural Experiment Stations, Fiscal Year 1948.

Table 3b - Utilization Research - Project Summary by Agency, Fiscal Year 1948.

Table 3c - Research Other Than Utilization - Project Summary by Agency, Fiscal Year 1948.

Table 3d - Marketing Research and Services - Project Summary by Agency, Fiscal Year 1948.

Table 4a - Specific Lines of Utilization Research Being Conducted by the Department or by Contract Under Section 10 (a) of the Research and Marketing Act. Table shows agency of Department responsible and allotment of funds.

Table 4b - Specific Lines of Research Other Than Utilization Being Conducted by the Department in Cooperation with State Agricultural Experiment Stations under Section 10 (b) of the Research and Marketing Act. Table shows agency of Department responsible and allotment of funds.

Table 4c - Specific Lines of Marketing Research and Service Work Being Conducted Under Title II of the Research and Marketing Act with responsible agencies and allotment of funds.

TABLE I

RESEARCH AND MARKETING ACT OF 1946
ALLOCATIONS BY AGENCY, FISCAL YEAR 1948

BUREAU OR AGENCY	Title I			Title II	Total
	Sec. 9	Sec. 10(a)	Sec. 10(b)		
Agricultural & Industrial Chemistry	$ -	$1,883,900	$ -	$	$1,883,900
Dairy Industry	-	78,600	120,000	-	198,600
Animal Industry	-	90,000	131,000	-	221,000
Entomology & Plant Quarantine	-	100,000	121,000	35,000	256,000
Human Nutrition & Home Economics	-	250,000	55,000	-	305,000
Plant Industry Soils & Agricultural Engineering	-	347,500	601,000	15,000	963,500
Office of Experiment Stations	2,500,000	-	10,000	-	2,510,000
Agricultural Economics	-	30,000	245,000	353,000	628,000
Forest Service	-	100,000	25,000	-	125,000
Soil Conservation Service	-	-	65,000	-	65,000
Farm Credit Administration	-	-	15,450	60,000	75,450
Extension Service	-	-	-	226,000	226,000
Office of Foreign Agricultural Relations	-	-	-	75,000	75,000
Production and Marketing Administration	-	25,000	64,550	1,169,000	1,258,550
Office of Administrator, RMA: Over-all administration	-	54,000	27,000	59,000	140,000
Office of Administrator, ARA: Over-all administration	-	27,000	13,000	-	40,000
Office of Secretary	-	5,000	3,000	3,000	11,000
Office of Information	-	9,000	4,000	5,000	18,000
Total	$2,500,000	$3,000,000	$1,500,000	$2,000,000	$9,000,000

Table 2

RESEARCH AND MARKETING ACT OF 1946

Allocations by Commodities, Fiscal Year 1948

Commodity	Title I Sec. 9	Title I Sec. 10(a)	Title I Sec. 10(b)	Title II	Total
General	$2,500,000	$ 380,000	$ 760,000	$1,239,300	$4,879,300
Poultry	-	144,900	58,550	60,000	263,450
Dairy	-	93,600	135,100	21,000	249,700
Livestock	-	90,000	154,400	100,000	344,400
Wool	-	50,000	1,000	34,000	85,000
Fruits and Vegetables	-	515,000	92,950	145,000	752,950
Tobacco	-	45,000	15,000	27,000	87,000
Sugar	-	-	20,000	15,000	35,000
Field Crops	-	565,000	-	170,200	735,200
Fats and Oils	-	87,000	20,000	52,000	159,000
Cotton	-	634,500	143,000	52,500	830,000
Forest Products	-	185,000	-	4,000	189,000
Potatoes	-	120,000	55,000	-	175,000
Overall Administration	-	90,000	45,000	80,000	215,000
Total	$2,500,000	$3,000,000	$1,500,000	$2,000,000	$9,000,000

Table 3(a)

RESEARCH AND MARKETING ACT OF 1946

Research At State Agricultural Experiment Stations
Fiscal Year, 1948

Title I, Sec. 9

	Estimated Amount
I Marketing Research	
Cotton	$ 65,000
Fruits and vegetables	226,000
Milk and dairy products	140,000
Livestock and livestock products	140,000
Poultry and eggs	156,000
Potatoes	108,000
Other commodities	125,000
Sub-total	960,000
II Research other than Marketing	
Cotton breeding and mechanization	183,000
Foods and human nutrition	229,000
New crops for industrial uses	40,000
Newcastle disease of poultry	45,000
Rural housing and farm structures	197,000
Beef cattle, dairy and poultry breeding	159,000
Other research	612,000
Sub-total	1,465,000
Administration by Office of Experiment Stations	75,000
Total appropriation, Title I, Sec. 9	2,500,000

Table 3(b)

RESEARCH AND MARKETING ACT OF 1946

Utilization Research - Project Summary by Agency, Fiscal Year 1948

Title I, Sec. 10(a)

Bureau	I. Developing new and improved uses of agricultural commodities.	II. Improving human nutrition and extending food uses of agricultural commodities.	III. Preservation and improvement of quality and prevention of spoilage in agricultural commodities between producer and consumer.	Over-all Administration	Total Appropriation
BAIC	1,758,900	-	125,000	-	1,883,900
BDI	58,600	-	20,000	-	78,600
BAI	-	-	90,000	-	90,000
BEPQ	60,000	-	40,000	-	100,000
BHNHE	75,000	175,000	-	-	250,000
BPISAE	185,000	-	162,500	-	347,500
BAE	30,000	-	-	-	30,000
FS	100,000	-	-	-	100,000
PMA	25,000	-	-	-	25,000
Off. Inf.	5,000	-	-	4,000	9,000
Off. Sec.	-	-	-	5,000	5,000
Adm. ARA	-	-	-	27,000	27,000
Adm. RMA	-	-	-	54,000	54,000
TOTALS	2,297,500	175,000	437,500	90,000	3,000,000

Table 3(c)
RESEARCH AND MARKETING ACT OF 1946
Research other than Utilization - Project Summary by Agency
Fiscal Year 1948
Title I, Section 10(b)

Bureau	I Development of new and more profitable uses of resources of manpower, soils, water, plants, and animals.	II Reducing hazards and risks in agricultural production.	III More efficient and satisfactory use of farm buildings, farm houses, farm machinery, and power.	IV Improving the marketing of agricultural commodities.	Overall Administration	Total Appropriation
BDI	120,000	-	-	-	-	120,000
BAI	85,000	45,000	-	1,000	-	131,000
BEPQ	-	120,000	-	1,000	-	121,000
BHNHE	-	-	45,000	10,000	-	55,000
BPISAE	251,000	172,000	145,000	33,000	-	601,000
BAE	40,000	15,000	90,000	100,000	-	245,000
FS	-	25,000	-	-	-	25,000
SCS	30,000	35,000	-	-	-	65,000
FCA	-	-	-	15,450	-	15,450
PMA	-	-	-	64,550	-	64,550
Exp.Sta.	10,000	-	-	-	-	10,000
Off.Inf.	2,000	-	-	-	2,000	4,000
Off.Sec.	-	-	-	-	3,000	3,000
Adm.ARA	-	-	-	-	13,000	13,000
Adm.RMA	-	-	-	-	27,000	27,000
TOTALS	538,000	412,000	280,000	225,000	45,000	1,500,000

Table 3(d)

RESEARCH AND MARKETING ACT OF 1946

Marketing Research and Services – Project Summary by Agency, Fiscal Year 1948

Title II

Bureau	I Developing new market information and basic data	II Developing new and expanded market outlets	III Reducing marketing costs and margins	IV Developing new standards and grading to improve marketability of farm products	V Improving marketing methods, facilities and equipment	VI Developing new processing and packaging techniques to minimize waste and increase salability	VII Analyses of demand and consumer preferences for agricultural products	Overall Administration	Total Appropriation
BPISAE	–	–	–	–	–	15,000	–	–	15,000
BEPQ	–	–	–	–	–	35,000	–	–	35,000
BAE	106,000	–	70,500	5,500	–	–	171,000	–	353,000
FCA	–	5,000	15,000	–	19,000	21,000	–	–	60,000
Ext.Ser.	70,000	50,000	–	–	106,000	–	–	–	226,000
OFAR	–	75,000	–	–	–	–	–	–	75,000
PMA	100,000	289,300	100,000	201,000	276,200	155,000	31,500	16,000	1,169,000
Off.Inf.	–	–	–	–	–	–	3,000	2,000	5,000
Off.Sec.	–	–	–	–	–	–	–	3,000	3,000
Adm.RMA	–	–	–	–	–	–	–	59,000	59,000
TOTALS	276,000	419,300	185,500	206,500	401,200	226,000	205,500	80,000	2,000,000

TABLE 4(a)

RESEARCH AND MARKETING ACT OF 1946

SPECIFIC LINES OF UTILIZATION RESEARCH, 1948

Title I, Sec. 10(a)

I. Developing New and Improved Uses of Agricultural Commodities

1. General	
a. Investigation of tanning and development of new tanning materials (BAIC)	$50,000
b. Use of agricultural products as insecticides and accessory materials (BEPQ)	50,000
c. Production of antibiotics from agricultural sources (BAIC)	50,000
d. Preparation of current and special reports and publications; printing review in connection with RMA projects on utilization (INF)	5,000
e. Study of the properties of apiary products to develop new and improved uses (BEPQ)	10,000
f. Funds allocated for conducting projects by contract 1/	641,900
2. Dairy	
a. Utilization of milk, skim milk and whey protein in the manufacture of cheese (BDI)	25,000
b. Utilization of milk and milk products in evaporated, condensed, and dried milk and in other food products (BDI)	25,000
c. Disposal of dairy wastes (BAIC)	15,000
d. Utilization of milk solids in ice cream and milk sherberts (BDI)	8,600
3. Livestock	
a. Economic utilization of farm-grown feeds in livestock production (BAE)	30,000
4. Wool	
a. Study of fundamental characteristics of wool as a means of developing new and improved uses (BAIC)	20,000
b. Utilization of wool grease and other wool by-products (BAIC)	30,000
5. Fruits and Vegetables	
a. Construction of a citrus fruit laboratory including installation of basic equipment (BAIC)	250,000
b. New and improved uses of citrus products (BAIC)	60,000
c. New and improved uses of deciduous fruits especially to prevent waste (BAIC)	40,000

SPECIFIC LINES OF UTILIZATION RESEARCH, 1948
Title I, Sec. 10(a) - Continued

I. Developing New and Improved Uses of Agricultural Commodities - Continued

5. Fruits and Vegetables - Continued

d. Commercial-scale experimental demonstration of the production of poultry and other animal foods from vegetable field wastes (BAIC)	1/
o. Design and construct commercial model of continuous typo press for recovering of juice from pears and fruits presenting similar juicing problems and their wastes (BAIC)	1/
f. Submerged fermentation production of edible mushroom mycelium from agricultural wastes (BAIC)	15,000

6. Potatoes

a. Conversion of potatoes to more stable forms and products and development of new methods of using potatoes for feeds and non-food uses (BAIC)	80,000
b. Commercial-scale experimental demonstrations of the drying of potatoes for feed and other industrial uses by newly developed process (BAIC)	1/
c. Predetermining the cooking quality of potatoes (BPISAE, $5,000; BHNHE, $10,000)	15,000

7. Tobacco

a. Processing Nicotina Rustica as a source of nicotine (BAIC)	15,000
b. Develop information on the relation of chemical and physical properties of tobacco to specific use values, and devise rapid methods for their determination (BPISAE)	30,000

8. Field Crops

a. Developing industrial and other outlets for grain (alcohol, fuel, vitamins, etc.) and evaluation of the development of motor fuels in experimental and full scale engines (BAIC)	150,000
b. Development of new and improved food, feed, and industrial uses for dried beans and peas and splits and culls therefrom (BAIC)	30,000
c. Develop feed and other uses for byproducts from grain and other crop diversions to alcohol production (BAIC)	30,000
d. Develop new and improved uses for rice and rice byproducts and better methods of storing and processing rice (BAIC)	50,000
e. Establish laboratory and pilot plant facilities to develop improved techniques for malting barley and evaluating barley quality for malting (BPISAE)	150,000

SPECIFIC LINES OF UTILIZATION RESEARCH, 1948
Title I, Sec. 10(a) - Continued

I. Developing New and Improved Uses of Agricultural Commodities - Continued

8. Field Crops - Continued	
f. Design, construct pilot plant equipment and operate to fractionate cereal starches using a newly developed method	1/
g. Industrial utilization of surplus supplies and of damaged and inferior grades of food and feed grains (PMA)	1/
9. Fats and Oils	
a. Quality improvement of peanut products and new uses for peanut oil (BAIC)	30,000
b. Conversion of soybean oil to fast-drying oils (BAIC)	1/
10. Cotton	
a. Improvement of resistance of cotton textiles to soiling (BAIC)	1/
b. Fundamental characteristics of cotton fibers as a means of developing entirely new uses (BAIC)	60,000
c. Develop new and improved products from cotton fibers through processing and chemical treatment (BAIC)	75,000
d. Development of new and improved products from cottonseed and other cotton byproducts (BAIC)	72,000
e. Increased clothing and household utilization of cotton through the improvement of the physical properties of fabrics (BHNHE)	50,000
f. Relative usefulness to consumers of cotton and manufactured fibers in household and clothing fabrics (BHNHE)	15,000
g. The adaptation of cotton yarn for tricot knitting machines (BAIC)	1/
h. Application of infra-red technique to a study of the deterioration of cotton cellulose	1/
i. Improved control of neps in the manufacture of cotton textiles	1/
j. Improvement of cotton warp yarns for carpets	1/
k. Development of an improved instrument to determine tensile strength of individual cotton fibers	1/

1/ Part or all of research under this project to be conducted by contract. To prevent influencing the bids of prospective contractors by revealing the Government's estimate of the cost for the particular project, the total amount involved is included under item I. 1.f above.

SPECIFIC LINES OF UTILIZATION RESEARCH, 1948
Table I, Sec. 10(a) - Continued

I. Developing New and Improved Uses of Agricultural Commodities - Continued	
11. Forest Products	
a. Increased use and serviceability of farm timbers (FS)	100,000
b. Pilot plant production of gum naval stores derivatives (BAIC)	20,000
Subtotal	2,297,500
II. Improving Human Nutrition and Extending Food Uses of Agricultural Commodities	
1. General	
a. Human nutritional requirements of population groups as indicated by nutritional status in relation to food intake (BHNHE)	50,000
b. Nutritive value and palatability of foods especially those for which an expanded market is needed (BHNHE)	50,000
c. Potential outlets for foods as indicated by current dietary habits of families in U.S.(BHNHE)	75,000
Subtotal	175,000
III. Preservation and Improvement of Quality and Prevention of Spoilage in Agricultural Commodities Between Producer and Consumer	
1. General	
a. Treating building materials of agricultural origin to prevent insect damage (BEPQ)	40,000
2. Poultry	
a. Quality preservation of poultry products, improved products and improved techniques of maintaining quality in storage (BAIC, $50,000; BAI, $30,000)	80,000
3. Dairy	
a. Preservation of milk and cream by freezing and refrigeration and improved techniques for maintaining quality in storage (BDI)	20,000
4. Livestock	
a. Processing in relation to preservation of quality and nutritive value of meats (BAI)	60,000

SPECIFIC LINES OF UTILIZATION RESEARCH, 1948
Table I, Sec. 10(a) - Continued

III. Preservation and Improvement of Quality and Prevention of Spoilage in Agricultural Commodities Between Producer and Consumer

5. Fruits and Vegetables	
a. Quality preservation in prepackaged fruits and vegetables (BPISAE)	35,000
b. Prevention of decay and spoilage in transported fruits and vegetables (BPISAE)	15,000
6. Field Crops	
a. Emergency development of corn drying equipment for farm use (BPISAE)	50,000
7. Fats and Oils	
a. Fundamental studies on the flavor stability of soybean oil (BAIC)	50,000
8. Cotton	
a. Developing improved equipment and techniques for ginning and associated problems to minimize loss and increase salability of cotton and cottonseed (BPISAE jointly with PMA)	22,500
9. Forest Products	
a. Determine the decay rate and profitable salvage period for insect-killed and fire-damaged timber (BPISAE)	40,000
b. Improvement of quality in flavor of maple syrup and other maple products (BAIC)	25,000
Subtotal	437,500
Over-all Administration	90,000
Total appropriation, Sec. 10(a)	$3,000,000

TABLE 4(b)

RESEARCH AND MARKETING ACT OF 1946

SPECIFIC LINES OF RESEARCH OTHER THAN UTILIZATION, 1948

Title I, Sec. 10(b)

I. Development of New and More Profitable Uses of Resources of Manpower, Soils, Water, Plants and Animals

1. General	
a. Relieving the pressure on farm irrigation supplies by development of underground aquifers (SCS)	10,000
b. The influence of mineral deficiencies in soils, including minor elements, on crop yields, composition and nutritive value (BPISAE)	50,000
c. Erosion control and stable crop production on steeply sloping soils of Puerto Rico (OES, $10,000; SCS, $20,000; BPISAE, $20,000)	50,000
d. Preparation of current and special reports and publications, printing review in connection with RMA projects under Sec. 10(b) (INF)	2,000
e. Methods of measuring farm expenditures and income (BAE)	15,000
f. Development of sampling materials and methods west of the hundredth meridian (BAE)	15,000
g. Establish a cooperative national program for the introduction and testing of new plants of potential value in American agriculture and for the preservation of valuable breeding stocks (BPISAE)	110,000
h. Unallocated pending approval of specific lines of work (BPISAE)	31,000
2. Poultry	
a. Hybridization for the genetic improvement in economic qualities of poultry (BAI)	20,000
3. Dairy	
a. Development of strains of dairy cattle especially adapted to southern conditions (BDI)	60,000
b. Development of strains of dairy cattle to insure high production for the small dairymen in dairy sections of the U. S. (BDI)	40,000
c. Seasonal milk problems, cost of processing, distributing and supplemental supplies (BAE)	10,000
4. Livestock	
a. Factors that affect the availability of nutrients in forage (BDI)	20,000
b. Identification and propagation of genetically superior lines of beef cattle (BAI)	65,000
5. Sugar	
a. Develop practices to maintain sugar content and quality of harvested sugar beets and sugar cane (BPISAE)	20,000

SPECIFIC LINES OF RESEARCH OTHER THAN UTILIZATION, 1948

Title I, Sec. 10(b)

I. Development of New and More Profitable Uses of Resources of Manpower, Soils, Water, Plants and Animals - Continued

6. Fats and Oils
   a. Regional investigations to improve the peanut crop through uses of superior varieties and methods of harvesting and curing (BPISAE) 20,000

Subtotal 538,000

II. Reducing Hazards and Risks in Agricultural Production

1. General
   a. Develop and improve equipment for applying insecticides and fungicides (BEPQ), $15,000; BPISAE, $15,000) 30,000
   b. Establish a cooperative national research program to develop practical methods and equipment for weed control (BPISAE) 67,000
   c. Risk bearing in agricultural production (BAE) 15,000
   d. Establishment of facilities for forecasting the development of crop plant disease (BPISAE) 30,000
   e. Investigations on nematode as limiting factor in crop production under sub-tropical and irrigation conditions (BPISAE) 40,000
   f. Research on the mechanics of wind erosion (SCS) .. 35,000
   g. Research on the basic ecology and physiology in control of undesirable range shrubs (FS) 25,000
   h. Toxicological effects of insecticides, fungicides, and herbicides on plants and animals (BEPQ) 40,000

2. Livestock
   a. Reducing death losses of young pigs (BAI) 25,000
   b. Sheep parasite investigations (BAI) 20,000

3. Fruits and Vegetables
   a. Research on the virus diseases of stone fruits (BPISAE, $20,000; BEPQ, $15,000) 35,000

4. Cotton
   a. Basic research on cotton insects relating to fundamental factors affecting control (BEPQ) 50,000

Subtotal 412,000

SPECIFIC LINES OF RESEARCH OTHER THAN UTILIZATION, 1948

Title I, Sec. 10(b)

III.	More Efficient and Satisfactory Use of Farm Buildings, Farm Houses, Farm Machinery and Power	
	1. General	
	a. Economics of farm mechanization and other improved techniques (BAE)	65,000
	b. Determination of space and facility needs in farm houses (BHNHE)	45,000
	c. Functional requirements, materials and construction methods for farm buildings, including structures for farm storage (BPISAE)	60,000
	d. Economics of farm service buildings (BAE)	5,000
	e. Factors affecting electric power consumption on farms (BAE)	20,000
	2. Tobacco	
	a. Developing equipment for bright-leaf tobacco curing and processing for market (BPISAE)	15,000
	3. Cotton	
	a. Develop efficient equipment for mechanizing cotton production, especially on small farms (BPISAE)	70,000
	Subtotal	280,000
IV.	Improving the Marketing of Agricultural Commodities	
	1. Poultry	
	a. Development and analysis of improved techniques for marketing eggs (BAE, $5,000; PMA, $6,000; FCA, $4,000)	15,000
	b. Marketing the spring egg surplus (BAE, $5,000; PMA, $5,550; FCA, $3,000)	13,550
	c. Factors affecting consumer demand and efficiency in marketing turkeys (BAE, $4,000; PMA, $6,000)	10,000
	2. Dairy	
	a. Effective pricing of milk as a means of stimulating consumption (BAE, $14,100; PMA, $11,000)	25,100
	3. Livestock	
	a. Marketing slaughter livestock by carcass weight and grade (BAE)	5,000
	b. Place of frozen food locker plants and freezers in marketing meat (BAE)	6,000
	c. Methods of marketing range livestock, both feeder and slaughter (BAE)	13,400

SPECIFIC LINES OF RESEARCH OTHER THAN UTILIZATION, 1948

Title I, Sec. 10(b)

IV. Improving the Marketing of Agricultural Commodities - Continued

4. Fruits and Vegetables	
a. Handling, transporting and marketing fruits and vegetables (BAE, $13,000; BPISAE, $14,000; BEPQ, $1,000; BHNHE, $4,000; PMA, $9,000)	41,000
b. Costs and margins studies on fruits and vegetables (BAE, $6,500; PMA, $6,000; FCA, $4,450)	16,950
5. Potatoes	
a. Handling, transporting and marketing of potatoes (BAE, $21,000; PMA, $14,000; BHNHE, $6,000; BPISAE, $14,000)	55,000
6. Cotton	
a. Regional marketing of one variety community cotton (BAE, $7,000; PMA, $7,000; BPISAE, $5,000; FCA, $4,000)	23,000
7. Wool	
a. Preparation and processing of domestic wools near source of supply (BAI)	1,000
Subtotal	225,000
Over-all Administration	45,000
Total appropriation, Sec. 10(b)	$1,500,000

Table 4(c)

RESEARCH AND MARKETING ACT OF 1946

Specific Lines of Marketing Research And Services, 1948

Title II

I. Developing New Market Information and Basic Data

1. General

a. Exploring possibilities for developing useful retail market news services (PMA)..... $20,000

b. Improving the effectiveness of wholesale market news services (PMA)..... 50,000

c. Methodological research to improve the accuracy and extend the scope of market news reports (BAE)..... 6,000

d. Obtaining new basic data pertaining to market supplies, movements, and prices (PMA), $30,000; BAE, $80,000... 110,000

e. Cooperative extension work on the educational aspects of developing new market information and basic data (EXT)..... 20,000

f. Developing and conducting educational and demonstrational work in Marketing (EXT)..... 50,000

2. Field Crops

a. Determination of amount of soft corn, together with moisture content and feeding value of the 1947 corn crop (BAE)..... 20,000

Subtotal 276,000

II. Developing New and Expanded Market Outlets

1. General

a. Expanding consumption and market outlets in cooperation with State agencies (PMA)..... 104,300

b. Development of foreign outlets for U. S. agricultural products in plentiful supply, and study of foreign competition (OFAR)..... 75,000

c. Expansion of the consumption of abundant foods and introduction of new uses by consumer education (EXT). 50,000

d. Improving distribution methods and expanding market outlets for farm products (PMA)..... 150,000

Title II - MARKETING RESEARCH AND SERVICES - Continued

II. Developing New and Expanded Market Outlets -- Continued

2. Dairy	
a. Maintaining and expanding the market for dairy products (PMA)	$ 15,000
3. Livestock	
a. Introduction of meat type hogs and improved swine carcasses for commercial distribution through cooperatives (FCA)	5,000
4. Cotton	
a. Improved market outlets for various kinds of cotton in relation to merchandising procedures (PMA)	20,000
Sub-total	419,300

III. Reducing Marketing Costs and Margins

1. General	
a. Transportation costs and their economic effects on agriculture (BAE)	12,000
b. Measurements of costs and margins in marketing farm products (BAE)	50,000
c. The general economics of marketing (BAE)	8,500
d. Reducing margins and costs by improving marketing and distribution methods and practices (PMA)	100,000
2. Dairy	
a. Functions of cooperatives in the development of fluid milk prices and of the methods of use classification(FCA)	6,000

Title II - MARKETING RESEARCH AND SERVICES -- Continued

III. Reducing Marketing Costs and Margins -- Continued

3. Field Crops	
a. Marketing margins and costs for grains and cereals; for feeds by market agencies; and for agencies distributing dry beans, peas and canned products (FCA)	$ 5,000
b. Analysis of cooperative grain dealers margins and costs (FCA)	4,000
Subtotal	185,500

IV. Developing New Standards and Grading to Improve Marketability of Farm Products

1. General	
a. Study of the adequacy of grades and standards and the basis for quality differentials (PMA)	30,000
b. Research on the application of statistical techniques to the evaluation of grades and standards (BAE)	5,500
2. Livestock	
a. Improvement in the standards for the market classes and grades of livestock and meats(PMA)	50,000
b. Improvement in the application of live animal grades (PMA)	10,000
3. Wool	
a. Skirting and sorting wool at ranches, concentration points and warehouses (PMA)	12,000
4. Fruits and Vegetables	
a. Development of new and revised standards for grades of processed fruits and vegetables and other products (PMA)	39,000
5. Tobacco	
a. Standardization research in the properties of tobacco (PMA)	10,000
6. Field Crops	
a. Develop new methods and new official standards to measure bread-baking quality of wheat (PMA)	20,000
7. Fats and Oils	
a. Development of a method to include oil content in the grading and inspection of oilseeds (PMA)	20,000
b. Improving standards and inspection equipment and methods for farmers' stock and shell edible peanuts (PMA)	10,000
Subtotal	206,500

Title II - MARKETING RESEARCH AND SERVICES -- Continued

V. Improving Marketing Methods, Facilities and Equipment

1. General	
a. Developing, demonstrating and promoting more efficient market facilities, organization and equipment for handling farm products at terminal secondary markets and concentration points (PMA)	$110,000
b. More efficient use of existing transportation services and facilities by cooperatives (FCA)	10,000
c. Merchandising processed horticultural products by cooperative associations (FCA)	9,000
d. Improving marketing methods, facilities and equipment through educational work and demonstrations (EXT)	105,000
2. Poultry	
a. Improving poultry and egg processing facilities and practices (PMA)	25,000
3. Livestock	
a. Improving marketing services, facilities and methods of handling livestock at public stockyards (PMA)	25,000
4. Fruits and Vegetables	
a. Improving distribution methods and practices for fruits and vegetables (PMA)	66,000
5. Tobacco	
a. Study of tobacco marketing methods, facilities and services (PMA)	9,000
6. Field Crops	
a. Determining adequacy of existing farm and commercial storage facilities for grain, feed, seeds, dry beans, peas and rice and determining and promoting needed measures and programs to correct inadequacies (PMA)	25,000
b. Developing methods of marketing seeds of improved varieties of legumes and grasses to maintain their identity (PMA)	10,000
c. Emergency development of corn drying equipment and promotion of wet corn drying program for farmers and commercial operators (EXT, $1,000; PMA, $2,200)	3,200
7. Forest Products	
a. Central distillation of crude gum (PMA)	4,000
Subtotal	401,200

Title II - MARKETING RESEARCH AND SERVICES -- Continued

VI. Developing New Processing and Packaging Techniques to Minimize Waste and Increase Salability

1. General	
a. Reduction of waste through the development of improved packaging materials and loading techniques (PMA)	$ 30,000
b. Processing of farm products by cooperative associations (FCA)	16,000
2. Poultry	
a. Prevention of loss and maintenance of quality in processing, packaging, and handling of eggs (PMA)	35,000
3. Fruits and Vegetables	
a. Prepackaging of perishable food products (FCA, $5,000; PMA, $20,000)	25,000
b. Refrigeration of fruits and vegetables at source and at market (BPISAE)	15,000
4. Field Crops	
a. Improvement of the packaging of dry peas, beans and rice (PMA)	15,000
b. Prevention of insect damage to stored grains, cereal products and seed stocks (BEPQ)	35,000
c. Determine physical and chemical changes causing flavor deterioration and staling of bakery products (PMA)	20,000
5. Fats and Oils	
a. Effects of new oilseeds processing techniques on the industry, market outlets and returns to growers (PMA)	10,000
6. Cotton	
a. Developing improved equipment and techniques for ginning and associated processes to minimize losses and increase salability of cotton and cottonseed (PMA jointly with BPISAE)	25,000
Subtotal	226,000

Title II - MARKETING RESEARCH AND SERVICES -- Continued

VII. Analyses of Demand and Consumer Preference for Agricultural Products

1. General	
a. Consumer preference studies (BAE)	$100,000
b. Improvement in consumption data and analyses (BAE)	15,000
c. Preparation of current and special reports and publications; printing review in connection with RMA marketing projects (INF)	3,000
2. Livestock	
a. Production, price and consumption analysis for meat animals and meat (BAE)	10,000
3. Wool	
a. The study of the domestic wool requirements in relation to alternative national wool policies (BAE, $10,500; PMA, $11,500)	22,000
4. Tobacco	
a. Price supply and consumption analyses for tobacco and tobacco products (BAE)	8,000
5. Sugar	
a. Competitive relationships between corn sugar and syrups and the cane and beet sugar and syrups (PMA)	15,000
6. Field Crops	
a. Price, demand and supply analysis of feed grains, byproduct feeds and hay (PMA, $5,000; BAE, $8,000)	13,000
7. Fats and Oils	
a. Analysis of factors affecting prices and uses of fats, oils and peanuts (BAE)	12,000
8. Cotton	
a. Price, demand and supply analysis of cotton and cotton products (BAE)	7,500
Subtotal	205,500
Over-all Administration	80,000
Total appropriation, Title II	$2,000,000

PASSENGER MOTOR VEHICLES

New Vehicles: The estimate anticipates the purchase of 20 automobiles for use by technical assistants where public transportation is inadequate or not available in supervising, directing, and carrying out at field stations the research and marketing service work authorized by the Research and Marketing Act of 1946.

OFFICE OF THE SOLICITOR

Appropriation Act, 1948	$2,125,000
Transfers, 1948, from other appropriations (shown in detail on next page)	+136,000
Proposed transfer in 1949 estimates:	
To "Salaries and expenses, Office of Secretary of Agriculture" (For salaries and other expenses of hearing examiners engaged in conducting judicial and quasi-judicial hearings under the Administrative Procedure Act involving violations of various laws administered by the Department)	-42,000
Total anticipated available, 1948	2,219,000
Budget estimate, 1949:	
Direct appropriation	$2,124,500
Transfers, 1949, from other appropriations (as shown in detail on next page)	148,000
Total available, 1949	2,272,500
Increase, 1949	+53,500

SUMMARY OF INCREASES, 1949

Change in appropriated funds:	
For within-grade salary advancements	+41,500
Changes in transferred funds:	
Increase in transfer from Commodity Credit Corporation for within-grade salary advancements	+4,000
Increase in transfer from "Flood Control" in connection with expanded flood control program	+8,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. General administration and business functions	$232,068	$219,000	$224,500	+$5,500(1)
2. Commodity credit, conservation and adjustment programs	263,427	242,000	246,000	+4,000(1)
3. Agricultural credit programs	248,756	218,000	221,000	+3,000(1)
4. Forestry, research and general legal services	221,631	210,000	213,000	+3,000(1)
5. Marketing, regulatory laws and transportation	258,396	239,000	244,000	+5,000(1)
6. Rural electrification programs	369,231	325,000	332,000	+7,000(1)
7. Field activities	979,254	766,000	792,000	+26,000(2)
Unobligated balance	237	- -	- -	- -
Total available	2,573,000	2,219,000	2,272,500	+53,500

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
Received by transfer from:				
"Administrative expenses, Commodity Credit Corporation, Department of Agriculture"	-$128,000	-$128,000	-$132,000	
"Flood Control, Department of Agriculture"	-8,000	-8,000	-16,000	
"Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for pay act costs)	-265,000	- -	- -	
Transfer in 1949 estimates to "Salaries and expenses, Office of Secretary of Agriculture"	+42,000	+42,000	- -	
Total appropriation or estimate	2,214,000	2,125,000	2,124,500	

INCREASES OR DECREASES

The net increase of $53,500 in estimated available funds under this item for 1949 consists of the following:

(1) Increases totaling $27,500 under Projects 1 to 6 inclusive to cover part of the cost of within-grade salary advancements in fiscal year 1949.

The Mead-Ramspeck Act, as amended by the Federal Employees Pay Act of 1945, provides that employees compensated on a per annum basis and occupying permanent positions, and who have not attained the maximum rate of compensation for the grade in which their positions were allocated, should receive an advance in compensation to the next higher rate within the grade after each 12 months of service for employees in grades below CAF-11 (and comparable grades in other services), and after each 18 months of service for employees in grades CAF-11 and above (and comparable grades in other services). The increases of $27,500 under Projects 1 to 6, inclusive, and $18,000 under Project 7 are to cover, in part, the additional cost of these within-grade salary advancements in the fiscal year 1949. These increases were determined only after careful consideration of the cost of within-grade salary advancements that can be absorbed through (1) savings due to delay in filling vacancies and (2) savings due to filling vacancies at the minimum of the grade as a result of separations and promotions.

Further absorption of the within-grade salary costs would necessitate curtailment of the essential legal services performed for the Department. The reduction-in-force actions at the close of the fiscal year 1947 and the beginning of the fiscal year 1948 required by the reduction in the 1948 appropriation, eliminated for the most part war service employees in this office and as adjustments are completed employment conditions are expected to become more stable. It is anticipated, therefore, that a smaller percentage of turn-over in personnel will be experienced in the fiscal year 1949 than in 1947 or 1948. Thus, it will be even more difficult to absorb within-grade salary advancements in 1949. The need for these additional funds is especially urgent in view of increased costs of supplies, equipment and other operation expenses being absorbed within the current appropriation.

(2) An increase of $26,000 under the project "Field activities" composed of:

(a) An increase of $8,000 to provide additional legal services in the field in connection with the expanded flood control program.

Experience in connection with the watersheds authorized on the basis of survey reports completed prior to the war has demonstrated the need for a thorough and comprehensive study of the legal problems which arise in the making of the survey, the preparation of the survey report and in carrying out the program authorized on the basis of the survey report. Since these survey reports become the basic act under which flood control operations are carried on within a designated watershed, the same care is necessary in reviewing one of these reports as any piece of legislation in order to avoid conflicting statements or ambiguities in the survey report which would make necessary frequent and lengthy study subsequent to Congressional authorization to determine what works of improvement were actually authorized, what conditions precedent were prescribed for Federal action and other similar matters.

The legal services required of the field offices of the Solicitor in connection with the flood control program consist principally of:

(1) interpretation of State and local laws
(2) review and approval of the preliminary draft of survey report
(3) interpretation of basic federal laws
(4) interpretation of survey reports on authorized watersheds
(5) preparation and review of memoranda of understanding between the Department and soil conservation districts, State conservation departments or other cooperating State or local agencies needed to carry out the terms of such survey reports
(6) review and approval of easements or agreements needed to acquire the necessary rights to carry out the works of improvement
(7) review and approval of contracts where the works of improvement are to be carried out by the Federal Government on a contract basis.

(b) An increase of $18,000 to cover part of the cost of within-grade salary advancements in fiscal year 1949.

ITEMIZATION OF ESTIMATES

Appropriation: Salaries and Expenses, Office of the Solicitor

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimate, 1949	Increase(+) or decrease(-)
Appropriation or estimate	$2,125,000	$2,124,500	-$500
Transferred from:			
"Administrative expenses, Commodity Credit Corporation, Department of Agriculture"	128,000	132,000	+4,000
"Flood Control, Department of Agriculture"	8,000	16,000	+8,000
Reimbursements for services performed	21,000	- -	-21,000
Payments received from non-Federal sources (cash-paying foreign governments)	- -	25,000	+25,000
Total available for obligation	2,282,000	2,297,500	+15,500
Comparative transfer to "Salaries and expenses, Office of Secretary of Agriculture"	-42,000	- -	+42,000
Total obligations (inclusive of reimbursements)	2,240,000	2,297,500	+57,500
Obligations by Objects			
Standard Classification			
01 Personal services	2,029,500	2,107,000	+77,500
02 Travel	65,000	65,000	- -
03 Transportation of things	13,000	13,000	- -
04 Communication services	17,000	17,000	- -
05 Rents and utility services	47,500	47,500	- -
07 Other contractual services	50,000	30,000	-20,000
08 Supplies and materials	14,000	14,000	- -
09 Equipment	4,000	4,000	- -
Grand total obligations	2,240,000	2,297,500	+57,500
Services performed (payments received from non-Federal sources and reimbursements)	-21,000	-25,000	-4,000
Total available (exclusive of reimbursements)	2,219,000	2,272,500	+53,500

WORK UNDER THIS APPROPRIATION

Current Activities and Trends: Legal services are furnished to all programs carried on by the Department in every State, territory and possession, advising the Secretary and other administrative officials on legal problems arising in connection with all phases of their duties, in accordance with a Congressional enactment in 1910 providing that "the legal work of the Department of Agriculture shall be performed under the supervision and direction of the Solicitor." The work of the office consists, among other things, of:

(1) Rendering legal opinions relative to the application of statutes, executive orders, and administrative rules and regulations;

(2) Drafting, examining, and construing of contracts, deeds, mortgages, leases, forms of loans, agreements, and other legal documents;

(3) Preparation of proposed administrative rules and regulations, orders, notices, proclamations, and proposed legislation;

(4) Conducting administrative hearings in reparation and other types of administrative proceedings required in carrying out certain programs of the Department and which are not conducted by the Office of Hearing Examiners under the provisions of the Administrative Procedure Act;

(5) Prosecuting, for employees of the Department, applications for patents on inventions which are to be used in departmental work;

(6) Considering and recommending appropriate disposition of claims for damage both for and against the Department;

(7) Examining evidence to determine whether there have been violations of Acts and orders administered by the Department and, in proper cases, recommending prosecution to the Attorney General;

(8) Drafting pleadings and briefs in civil and criminal cases involving agencies of the Department and the laws administered by them; assisting and cooperating with the Department of Justice in handling litigation in lower and appellate courts;

(9) Legal review and comment of all proposed Commodity Credit programs;

(10) Preparation and review of forms and instructions for legal sufficiency in carrying out programs of the Department;

(11) Referring claims to the Comptroller General for final disposition;

(12) Issue determinations with respect to wages and fair prices in connection with the Sugar Act of 1948;

(13) Revision of delegations of authority, operating procedures, sales procedures, and forms of conveyance;

(14) Determining eligibility of borrowers, validity of options, and validity and sufficiency of water rights;

(15) Execution of liquidation agreements for defense relocation corporations, land-leasing, land-purchasing, and other cooperative associations;

(16) Effecting collections by means of demand letters and judicial process;

(17) Application of laws relating to applications for patent and other rights under mining laws and other public land statutes;

(18) Considering appeals from administrative decisions relating to use of national forest lands and sale of timber therefrom;

(19) Handling legal work incident to the settlement or litigation of cases arising on account of injury to or unlawful occupancy and use of national forest lands and resources, such as forest fires, grazing and occupancy trespasses;

(20) Review and approval of survey reports, memoranda of understanding, agreements, administrative instructions, performance bonds, and appropriation language;

(21) Continuous study of laws of each State for proposed changes and amendments which might affect agricultural programs;

(22) Preparation or procurement of title evidence and review thereof;

(23) Review of investigations and audit reports compiled by the Commodity Exchange Authority to determine whether there is sufficient evidence to support court proceedings;

(24) Processing rural electrification loans for legal sufficiency including preparation of loan and security documents, examination and approval of the loan dockets prior to allocation and servicing problems related thereto;

(25) Furnishing legal advice in connection with problems arising through the construction and operation of Rural Electrification Administration-financed power systems; and

(26) Preparation for publication in the Federal Register, in cooperation with administrative bureaus and units of the Department, statements containing a description of the Department's internal and field organization together with final delegation of authority, a statement of the general course and method by which each particular type of activity is channeled and determined, including the nature and requirements of all formal and informal procedure available, as well as forms and instructions; also assisting bureaus of the Department in drafting for publication in the Federal Register numerous notices of proposed rule making with respect to agency action not required by statute "to be made on the record after an opportunity for agency hearing".

The progress and effectiveness of the many and varied programs of the Department are aided by rendering to the administrative officers legal advice and assistance involving the consideration and application of practically all branches of the law.

The volume and scope of the activities of this office are dependent in large measure upon the programs of the Department. This office has little latitude for exercising control of the volume of legal assistance it is called upon to furnish. This is dependent almost entirely upon the requests of the administrative officials and the problems they encounter in the conduct of their program operations. Due to the reduction in funds for this office in the fiscal year 1948 and the resultant decrease in the number of personnel, it has been necessary to reduce the number of legal opinions rendered, as well as curtailing the amount of legal assistance formerly furnished the U. S. Attorneys and the Department of Justice which had been requested and expected in the past.

1. Appellate Litigation: Drafts or briefs are prepared by this office for use by the Solicitor General in presenting cases to the Supreme Court. During the fiscal year 1947 the Supreme Court of the United States heard and disposed of 5 cases of importance in the administration of regulatory statutes or departmental programs, the decision in each case supported the position assumed by this Department. The following are examples:

   (a) United States v. Rizicka, 329 U.S. 287 (1946) - in an action brought to enforce the provisions of a milk order, it was held that the defendant may not contest the validity of the amounts claimed by the Market Administrator to be due, but must exhaust the administrative remedy provided by section 8(c) 15(A) of the Agricultural Marketing Agreement Act of 1937.

   (b) Rice v. Santa Fe Elevator Corporation, 67 S. Ct. 1146 (1947) - in an action brought to enjoin the Illinois Commerce Commission from exercising jurisdiction over certain warehouses licensed under the United States Warehouse Act, it was held that the Secretary's

jurisdiction over such warehouses was exclusive and superseded regulation by the States.

Briefs were prepared and oral argument presented during the fiscal year 1947 before United States Circuit Courts of Appeal in the following cases, all of which were decided in favor of the United States:

(a) Ogden Dairy Company v. Wickard, et al., 157 F. 2d 445 (1946) and United States v. Turner Dairy Company, 162 F. 2d 425 (1947) - these cases presented problems in the enforcement and administration of milk orders promulgated under the Agricultural Marketing Agreement Act of 1937.

(b) Rodger v. United States, 158 F. 2d 835 (1947) - this case involved a question in connection with the farm marketing quota provisions of the Agricultural Adjustment Act of 1938; that is, whether the United States is entitled to recover interest on marketing penalties provided by the Act from the date such penalties become due until the rendition of judgment. The decision was in favor of recovery of interest.

Opinions were rendered during the fiscal year 1947 in connection with the following cases involving questions arising in the administration of Federal milk orders:

(a) Bailey Farm Dairy Company, et al., v. Andersen, 157 F. 2d 87 (1946), cert. den. 67 S. Ct. 355

(b) Grandview Dairy, Inc. v. Jones, et al., 167 F. 2d 5 (1946)

2. Commodity Credit, Section 32 and School Lunch Programs: The legal work performed is in connection with price support programs through which the prices of various agricultural commodities are supported through loan, purchase, and other operations; programs which consist of making payments or purchases for resale at a loss for the purpose of maintaining price ceilings; foreign purchases in which contracts are prepared for the procurement abroad and sale of food, agricultural commodities and products thereof; supply programs for the procurement of agricultural commodities and products thereof for supplying the United States Government agencies, cash paying foreign governments, American Red Cross, and similar organizations; commodity export programs such as the exportation of cotton; loans to the Secretary of Agriculture; contract settlement and renegotiation. The type and volume of work performed during the fiscal year 1947 is indicated by the following:

Dockets approved instituting new program operations or those already in operation and amended.....260

Master forms of purchase and sales contracts and of offers, loan documents and special agreements prepared.....400

Formal legal opinions and memoranda written and daily oral and informal written advice given administrative officials.....200

Investigation reports reviewed.....241

Apparent violations of Section 35A of the Criminal Code referred to the Department of Justice.....206

Convictions obtained..... 41

Cases in litigation at the close of fiscal year 1947 or had been referred to the Department of Justice for institution of suit.....400
(18 involved between $100,000 and $500,000 and many over $20,000)

Cases closed during the fiscal year (involving approximately $550,000).....100

The legal work in connection with these programs is increasing since many new claims are arising out of war-time activities as a result of recent audits and investigations and also due to changes in the School Lunch programs brought about by legislative changes.

3. Conservation and Adjustment Programs: Under this project legal work is performed in connection with the agricultural and naval stores conservation programs, formulated under authority of the Soil Conservation and Domestic Allotment Act, as amended, designed to promote and improve soil fertility and to conserve the soil and water resources of the Nation; marketing quotas provided under Title III of the Agricultural Adjustment Act of 1938 for wheat, cotton, peanuts, corn, rice, and tobacco; sugar payments under Title III of the Sugar Act of 1937; crop insurance to insure crops against loss due to weather and other unavoidable causes. The type and volume of work performed during the fiscal year 1947 is indicated by the following:

Number of bulletins for Alaska, Hawaii, and Puerto Rico on which assistance was given in preparation..... 51

Number of program bulletins and amendments on which assistance was given in preparation.....125

Tobacco regulations for publication in the Federal Register reviewed and approved..... 19

Determinations reviewed.....300

Public hearings held..... 11

Determinations issued..... 16

Assistance in drafting regulations..... 16

Assistance in preparation of forms..... 17

Solicitor's Opinions prepared..... 4

Legal memoranda prepared..... 41

Cases in litigation.....249

Cases closed during the year.....152

Indications are that the legal work in 1949 will increase over that of 1947 in connection with the marketing quota programs and the crop insurance program and that no work will be required in connection with price control and wage stabilization.

4. Farm Credit Administration Programs: This office renders supervisory legal service in connection with all farm credit institutions, including the Federal Land Banks, National Farm Loan Associations, Intermediate Credit Banks, Production Credit Corporations, and Banks for Cooperatives. The legal work consists primarily of furnishing day-to-day legal service to the Governor of the Farm Credit Administration, the Commissioners, and members of their staffs; handling problems encountered in developing long range reserve programs for national farm loan associations and developing a legal foundation for such associations; determining the eligibility of agricultural paper for discount by the banks, and corporate authority of the banks under the Federal Farm Loan Act, as amended; development of plans to make patronage refunds to borrowers out of association earnings; and studying the application of Federal and State tax laws to production credit associations.

It is anticipated that approximately the same volume of legal work will continue during fiscal year 1949 as at present.

5. Farmers Home Administration Programs: All legal work arising in connection with the administration of the Farmers Home Administration Act of 1946 is performed under this project. Considerable legal work was performed in connection with legislative developments which led to the enactment of the Farmers Home Administration Act of 1946 which abolished the Farm Security Administration, repealed the Emergency Crop and Feed Loan legislation, and furnished authority for the creation of the Farmers Home Administration. The majority of the legal work is related to loan making; loan servicing; liquidation of project assets; compromise of indebtedness; litigation, including foreclosures, for the collection of the accounts serviced by the Farmers Home Administration; legal approval of administrative correspondence and clearance of

legislative matters. The type and volume of work performed during the fiscal year 1947 is indicated by the following:

Number of new real estate and credit sales loans reviewed and approved, amounting to $45,467,807	5,807
Number of loans reviewed and approved for operating credit, amounting to $103,866,373	192,589
Number of loans reviewed and approved for water facilities, amounting to $1,503,556	1,078
Loans referred to this office for collection	5,442
Accounts referred to this office for collection	3,804
Suits against the United States	23
Criminal cases handled	25

As compared with the fiscal year 1947 it is anticipated in the fiscal year 1949 there will be an increase in the legal work performed in connection with loan servicing and liquidation of corporation trust agreements and assets and a decrease in revision of forms and instructions, and real estate loans and credit sales.

6. Forestry and Lands Programs: Under this project legal work is performed in connection with the administration of the national forests, Forest Service cooperative programs in which the Forest Service cooperates with State and local agencies and individuals under the Clarke-McNary Act, the Cooperative Farm Forestry Act of May 18, 1937, and other acts; Soil Conservation Districts programs, composed of 1889 districts, embracing approximately 1,002,968,000 acres; sub-marginal land program (Title III, Bankhead-Jones Farm Tenant Act); water conservation and utilization projects in which the Department is responsible for the acquisition, development, settlement, and sale of project lands; flood control programs; land acquisition program under the Weeks Law, as amended and supplemented; and mineral rights in lands. The type and volume of work performed during the fiscal year 1947 is indicated by the following examples:

Civil and criminal cases involving trespasses upon the National Forests reviewed and referred to the Department of Justice, including preparation of pleadings and briefs, involving damages for $402,031.58	429
Trespasses reviewed and assistance furnished in settlement thereof through administrative action	1,000

Public hearings held	1
Tracts of land approved for acquisition in which 20% of the title work had been completed	1,100
Tracts of land for which initial steps had been taken toward acquisition by exchange under the General Exchange Act of March 20, 1922, totalling 173,145 acres	57
Assistance rendered in the preparation of handbooks	2
Memoranda of understanding reviewed for legal sufficiency where new soil conservation districts are formed	318
National Forest timber sales reviewed and approved	5,493

An increase in the legal work relating to national forests is anticipated during the fiscal year 1949 in view of the proposed establishment of 6 or 8 additional sustained-yield units, and increased activities in timber sales. A decrease is expected in the legal work incident to the land acquisition program in 1949.

7. General Legal Services: Under this project legal work is performed in connection with the research activities of the Department; emergency powers; personnel matters; fiscal and budget affairs; procurement and leases; claims; and patents. In addition, an indexed digest service for the entire Office of the Solicitor is maintained covering opinions of the Solicitor and decisions of the Comptroller General. The type and volume of work performed during the fiscal year 1947 is indicated by the following:

Cases involving claims in which settlement could not be obtained by direct demand submitted to the Department of Justice	45
Determinations for secretarial approval prepared and assistance given the Department of Justice in connection with claims under the Federal Tort Claims Act	99
Major legal memoranda prepared	250
Formal opinions rendered	5
Informal opinions and advice given	3,500

Reports of fiscal irregularity cases made to the Comptroller General with accompanying disposition of the criminal phases of the cases by abandonment of prosecution or referred to the U. S. Attorneys	300
Formal contracts and related bonds prepared, reviewed or examined	225
Cooperative agreements prepared, reviewed or examined	167
Memoranda of understanding prepared, reviewed or examined	200
Leases examined	153
Renewals of leases examined	457
Supplemental agreements examined	150
Bonds for employees examined	800
Miscellaneous bonds examined	100
Certification of documents for use as evidence prepared in various cases	253
New applications for patent filed in Patent Office	131
Applications for patent terminated	73
Cases in initial stages of preparation as applications for patent	27
Total number of licenses issued (under 57 patents)	217

An increase in the legal work is anticipated in connection with the Research and Marketing Act of 1946. An increase in the legal work in connection with patents is also expected because of the increased activity in research and Executive Order 9865, dated June 17, 1947, affecting the obtaining of foreign rights to these patents.

8. Marketing and Regulatory Laws: The legal work performed is in connection with milk, fruits and vegetables, marketing agreements and orders under the Agricultural Marketing Agreement Act of 1937; Perishable Agricultural Commodities Act; war food orders; Commodity Exchange Act; Federal Seed Act; Insecticide Act; transportation charges on farm products; Packers and Stockyards Act and various other regulatory statutes. The type and volume of legal work performed during the fiscal year 1947 is indicated by the following:

Milk marketing orders amended	23
Public promulgation hearings held	34
Cases in which legal assistance was rendered in the handling of enforcement actions against handlers not complying with the requirements of milk orders	26
Cases transmitted to the judicial officer for decision arising upon petitions filed under section 8c(15)(A)	12
Volume, grade and size regulations issued	184
Enforcement actions instituted against handlers not complying with the requirements of marketing agreement orders on fruits and vegetables	23
Reparation proceedings disposed of under the Perishable Agricultural Commodities Act	132
Disciplinary proceedings disposed of under the Perishable Agricultural Commodities Act	5
Amendments issued to various war food orders under the authority of the Second War Powers Act	66
Public hearings held	59
War food orders terminated in connection with which legal documents were prepared	30
Injunctions issued in connection with court cases instituted	16
Criminal cases successfully prosecuted	78
Disciplinary proceedings instituted against violators of the Commodity Exchange Act	3
Criminal prosecution instituted through the Department of Justice in connection with Commodity Exchange Act	1
Criminal cases instituted under the Federal Seed Act	22
Seizures instituted under the Federal Seed Act	4
Criminal prosecutions instituted under the Insecticide Act	17

Seizures instituted under the Insecticide Act	44
Notices of judgment prepared and published	50
Pleadings and briefs prepared, oral arguments made and assistance given in proceedings before the Interstate Commerce Commission, U. S. Maritime Commission, Civil Aeronautics Board and various State transportation regulatory bodies	63
Proceedings instituted under the Packers and Stockyards Act	77
Orders issued in proceedings	75
Civil cases reported under the 28-Hour Law	447
Criminal cases reported under the Meat Inspection Act	29
Criminal cases reported under the Diseased Animal Transportation Act	1
Criminal cases reported under the Agricultural Disease Dissemination Act	2
Criminal cases reported under the Warehouse Act	4
Criminal cases reported under the Naval Stores Act	1
Legal documents prepared in connection with the enforcement of the 28-Hour Law	1,000
Legal documents prepared in connection with marketing agreement and order programs for milk, fruits and vegetables	2,200

In addition, the activities of the Office of the Hearing Clerk are supervised. This office serves as the official depository for the documents filed in proceedings arising under the numerous regulatory laws administered by the Department. Under this project there is edited and issued a monthly publication entitled "Agriculture Decisions" which contains final decisions in administrative proceedings under the regulatory laws administered by the Department.

It is anticipated that the legal work in connection with the enforcement of war food orders, including litigation, will decrease considerably and the legal work will increase in connection with transportation proceedings, Insecticide Act, Commodity

Exchange Act, Packers and Stockyards Act, 28-Hour Law, marketing agreements and orders, Perishable Agricultural Commodities Act and other regulatory activities.

9. Rural Electrification Program: This office renders all necessary legal services in connection with the Rural Electrification Administration program. The legal problems presented in this connection are related generally to: (1) Rural Electrification Administration loans and the Government security thereof; (2) operations of Rural Electrification Administration borrowers; and (3) litigation and special problems incident to the program. As a lending agency, it is necessary that the Rural Electrification Administration be continuously advised of specific terms and conditions upon which its borrowers could conduct electrification programs under the laws of each State. By the end of the fiscal year 1947 over $1,068,000,000 of loan funds had been allocated to its borrowers for the construction of electric systems, more than one half million miles of Rural Electrification Administration financed transmission and distribution lines were being operated by 889 borrowers and were serving approximately 1,850,000 consumers. The type and volume of work performed during the fiscal year 1947 is indicated by the following:

Number of loans made to Rural Electrification Administration borrowers in connection with which legal services were rendered	820
Loan and security instruments prepared	2,000
Supporting or related documents prepared in connection with loans	3,100
Transfer agreements drafted	45
Deeds and bills of sale drafted	20
Assumption notes drafted	20
Documents such as corporate minutes, leases of lien and opinions of counsel prepared	140
Proposed loans involving the acquisition of existing lines and facilities by Rural Electrification Administration borrowers for which legal approval was given	69
Purchase and sale agreements prepared in connection with acquisitions	47
Separate legal interpretations given	187
Deeds and bills of sale prepared in connection with acquisitions	47

Number of Rural Electrification Administration borrowers for which extensions were approved of the amortization period of Rural Electrification Administration loans made prior to September 21, 1944	75
Construction, engineering, materials, power, and allied contracts reviewed	5,100
Construction, engineering, materials, power, and allied contracts drafted	210
Individual joint use agreements for use of Rural Electrification Administration borrowers reviewed	41
Individual joint use agreements for use of Rural Electrification Administration borrowers prepared	30
Forms of municipal franchises prepared upon request for use in municipalities of 15 States	200
Preparation, revision or review of easement forms	62
Preparation, revision or review of railway crossing agreements	102
Preparation, revision or review of various other types of agreement	239
Parcels of land for which abstracts of title were examined	175
Tracts of land for which title evidence other than abstracts were examined	43
Letters and memoranda written to borrowers and administrative officials with respect to the legality and sufficiency of action substantially affecting the Government security	1,600
Incorporation of new cooperative borrowers in which assistance was rendered borrowers' attorneys	11
Conversion of existing cooperatives under the provisions of the State Electric Acts patterned after the uniform act developed by REA compiled under supervision of this office	25

Conversion of existing cooperatives under the Missouri Rural Electric Cooperative Act under supervision of this office..... 30

Articles of incorporation amended in which assistance was rendered..... 41

By-laws altered in which this office assisted in drafting new provisions and advised borrowers' counsel in respect thereof.....253

Suggested by-laws and articles of incorporation of cooperatives examined and appropriate amendments prepared.....600

Cases in litigation involving REA borrowers in which assistance was rendered in the protection of the Government's interest.....260

As compared with the fiscal year 1947 it is anticipated in the fiscal year 1949 there will be an increase in the legal work relating to the rural electrification program. This estimate is based on the anticipated number of new REA loan allocations (as distinguished from the aggregate amount of such loans).

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

Item	Obligations 1947	Estimated obligations 1948	Estimated obligations 1949
Working Fund, Agriculture, Office of Solicitor, Advance from Public Buildings Administration: For special allowances to employees incident to their return to Washington, D.C. from Kansas City, and St. Louis, Missouri, in connection with recentralization of FCA and REA	$9,205	$5,270	- -
Supply and Distribution of Farm Labor: Legal services in connection with the farm labor supply program a/	40,138	15,342	- -
Relief Assistance to Countries Devastated by War, Executive Office of the President (Allotment to Agriculture) (Allotment to Office of the Solicitor): Legal services in connection with the program for relief assistance to war-devastated countries	- -	50,000	- -
War Assets Administration: Legal services in connection with the disposition of surplus agricultural commodities and agricultural and forestry lands	46,115	25,000	- -
Penalty Mail Costs, Department of Agriculture (Allotment to Office of Solicitor): For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress	1,979	2,696	2,900
TOTAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	97,437	98,308	2,900

a/ Allotment from funds appropriated on a calendar year basis for farm labor supply program in a separate act.

PENALTY MAIL ESTIMATES
Sec. 2, Public Law 364, 78th Congress
(Allotment to Office of the Solicitor)

	1947	1948	1949	Increase (+) or decrease (-) 1949 over 1948
Category 1	- -	- -	- -	- -
Category 2	1,979	2,696	2,900	+204
Total	1,979	2,696	2,900	+204 (1)

(1) The increase of $204 for 1949 is for the purpose of providing sufficient funds with which to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20.00 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

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Category 2 consists of operational and administrative correspondence between the various units and field offices of the Solicitor's Office, and with the various bureaus of the Department in connection with the legal work being performed for those bureaus, including distribution of legal opinions and the transmittal of case material during the course of consideration; correspondence with other Government departments and the public, including correspondence with the United States Attorneys in litigation matters, numerous demand letters incident to the collection of outstanding loans of the credit agencies and legal correspondence with Rural Electrification and other cooperative associations.

OFFICE OF INFORMATION

Summary of Appropriations, 1948, and Estimates, 1949

Item	Appropriations, 1948	Budget Estimates 1949	Increase (+) or decrease (-)
Salaries and expenses	a/ $580,164	$580,000	-$164
Printing and binding	1,607,000	1,857,000	+250,000
Total, direct annual appropriation	2,187,164	2,437,000	+249,836

a/ Includes $5,164 proposed transfer in the estimates from "Salaries and expenses, Office of the Secretary of Agriculture."

(a) Salaries and expenses

Appropriation Act, 1948		$575,000
Transfer, 1948, from Commodity Credit Corporation		+13,975
Proposed transfer in 1949 estimates:		
From "Salaries and expenses, Office of Secretary of Agriculture" (for handling requests received by telephone and in person for publications and general information)		+5,164
Total anticipated available, 1948		594,139
Budget estimate, 1949:		
Direct appropriation	$580,000	
Transfer from Commodity Credit Corporation	13,975	593,975
Decrease, 1949 (to round off appropriation total)		- 164

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. General administration of Office of Information and of informational work	$37,252	$30,275	$30,275	- -
2. Business service, including communications and records	58,575	56,300	56,300	- -
3. Publications preparation, distribution and control	225,430	205,857	205,693	-164(1)
4. Preparation and distribution of special reports and current information	69,885	54,587	54,587	- -
5. Preparation and distribution of agricultural information by exhibits	116,052	105,925	105,925	- -
6. Preparation and distribution of agricultural information by radio	41,930	34,725	34,725	- -
7. Preparation and distribution of agricultural information to the press	68,566	50,870	50,870	- -
8. Preparation and distribution of agricultural information by motion pictures	123,134	55,600	55,600	- -
Unobligated balance	1,633	- -	- -	- -
Total available	742,457	594,139	593,975	-164
Transfers from:				
"Administrative expenses, Commodity Credit Corporation, Department of Agriculture"	-13,710	-13,975	-13,975	
"Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act costs)	-70,000	- -	- -	
Transfer in 1949 estimates from:				
"Salaries and expenses, Office of Secretary of Agriculture"	-17,137	-5,164	- -	

(Continued on next page)

PROJECT STATEMENT (Cont'd.)

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
Transfers from other appropriations (for production and distribution of motion pictures as shown in detail in Budget schedules)	-63,110	- -	- -	
Total appropriation or estimate	578,500	575,000	580,000	

DECREASE

(1) The decrease of $164 in estimated available funds under this item for 1949 is to round off the appropriation total.

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

> * * * Provided further, That in the Preparation of motion pictures or exhibits by the Department, not exceeding a total of $10,000 may be used for employment pursuant to the second sentence of section 706(a) of the Department of Agriculture Organic Act of 1944 (5 U.S.C. 574), said Act being elsewhere herein referred to as the Organic Act of 1944, as amended by section 15 of the Act of August 2, 1946 [(Public Law 600)] (5 U.S.C. 55a): Provided, further, That no part of this appropriation * * *

The first change is merely for the purpose of substitution in the language the reference to the U. S. Code instead of the public law citation to the Act of August 2, 1946.

The second change proposes to insert the word "further" which was inadvertently omitted in the 1948 Agricultural Appropriation Act.

ITEMIZATION OF ESTIMATES

Appropriation: Salaries and Expenses, Office of Information

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimate, 1949	Increase(+) or decrease(-)
Appropriation or estimate	$575,000	$580,000	+$5,000
Transferred from "Administrative expenses, Commodity Credit Corporation, Department of Agriculture"	13,975	13,975	- -
Total available for obligation	588,975	593,975	+5,000
Comparative transfer from "Salaries and expenses, Office of the Secretary of Agriculture"	5,164	- -	-5,164
Total obligations	594,139	593,975	-164
Obligations by objects			
Standard Classification			
01 Personal services	$538,164	$538,000	-164
02 Travel	10,200	10,200	- -
03 Transportation of things	12,420	12,420	- -
04 Communication services	4,700	4,700	- -
07 Other contractual services	8,200	8,200	- -
08 Supplies and materials	19,455	19,455	- -
09 Equipment	1,000	1,000	- -
Grand total obligations	594,139	593,975	-164

WORK UNDER THIS APPROPRIATION

General: Activity throughout the Office of Information continues at a comparatively high level during the fiscal year 1948. The workload and output per employee has increased especially during the latter half of the year when the number of employees was progressively curtailed, even though requests for information and service continued to hold up near previous levels. The greater workload rate per employee is especially burdensome in the publications, press and exhibits divisions. The principal reasons for this situation are (1) more publication manuscripts to be reviewed minutely to assure maximum use of limited printing funds; (2) continuation of numerous requests for information on agricultural supplies and prices; and (3) a proportionately greater rate of activity in connection with the exhibits program.

Departmental control of printing funds with a special effort to gauge the amount and effect of continued rising unit costs is another especially difficult problem requiring constant attention.

Requests Received for Information: Requests for information (including publications) from farmers, the general public, and Members of Congress decreased in the fiscal year 1947 from what they had been the previous year but remained substantially above the fiscal year 1945. Following are the three-year data:

Fiscal Year	Total Requests	Congressional Requests
1945	727,800	196,455
1946	871,687	291,287
1947	767,398	254,718

The decrease in the fiscal year 1947 was due primarily to the necessity, with many publications out of stock completely, for very close inspection of announcements of publications and otherwise indicating that copies of publications were not available. During the latter part of the fiscal year requests for publications and information were received in such large numbers that an increasingly greater volume was carried from day to day. This caused an accumulation which at times resulted in slowing down the rate of handling all requests. Concurrent delays at the Superintendent of Documents lengthened the period during which an inquirer was forced to wait for a publication.

In the fiscal year 1948, inability to restore publications stocks, even with increased funds for printing, and the reduction in personnel will make it impracticable to supply many publications requested. No decrease is expected in volume of requests for publications and service in 1948. Thus the reduction in available funds for salaries and related expenses in 1948 is expected to result in more delay in handling all types of inquiries in the peak spring months.

Publication Activities: The Yearbook of Agriculture for 1943-47 was issued near the end of the past fiscal year. At the present time the planning and preparation of the 1948 Yearbook on grassland agriculture is well along. A total of 1,065 publications, periodicals, and reprints were received for editorial handling during the fiscal year 1947. Of this total 31 were disapproved or withdrawn, 343 publications and 313 reprints were forwarded for printing, 280 were held up for lack of printing funds, and 98 were carried over in the editorial section. In addition a little over a hundred publications were held for re-scheduling by bureaus pending availability of 1948 printing funds. The rate of completion of manuscripts in readiness for editing may be expected to increase by as much as 15 percent in 1948 over 1947.

Indexing of publications: The indexing work for the 1941-45 cumulative index of Department publications was completed, but there remains to be done the editing, cross-referencing and other final preparation work for printing. No work will be done on this index in 1948. The 1946-50 index is about one-fourth completed, but no work will be done in 1948. Other indexes on which work has been postponed are: Index to Farmers' Bulletins 1751-2000; Index for Department Circulars 1-750; Index to Technical Bulletins 751-1000.

More difficulty answering publications requests: Stocks of Farmers' Bulletins are now about one-twelfth of the aggregate number of Farmers' Bulletins accrued on accumulated quotas of Members of Congress. Normally stocks are about one-half. The shortage of publications has resulted in an increasing number of inquiries referred to bureaus for less rapid and more costly dictated or specially prepared replies. Much effort is wasted by a farmer, and many times by a Member of Congress, in having requested an unavailable publication. Duplication of correspondence due to follow-up inquiries, and added workload in the Distribution Section, result in increased costs of operation.

Control of duplicated materials: The direct responsibility for control of duplicated materials has been returned to bureau offices, partially as a relaxation of wartime and post-war paper controls. The overall responsibility is retained in the Office of Information. Although it does not clear every requisition for processing materials, a post-audit control has been instituted as a check on materials issued. This method will allow some opportunity, with curtailed personnel, to continue some progressive improvement of publications planning. This work has been slowed up somewhat with printing difficulties, but the inter-bureau editorial committee still plays an active role in publications planning work. Most recently, for example, proposals to consolidate and improve the Department series of publications are being finally reviewed for action by this office.

Printing Management: A total of 3,171 printing requests were handled in 1947 -- a slight reduction from the 1946 total of 3,229, due to fewer requisitions for publications. The 3,171 total included 2,317 requisitions for forms and binding and 854 for publications, periodicals, and reprints. Savings of $12,423 in printing funds were

achieved during the year by changing stock and format and by consolidating orders. Of this amount, $10,614 resulted from form specification changes. Requests for the printing technicians to advise directly on technical matters in planning for most economical printing and distributing of necessary forms and publications for the Department, and for special work, were just as numerous as in previous years. The stoppage on printing during the latter part of the 1947 fiscal year again increased the load of telephone and personal calls for information and service on pending bureau printing orders and for assistance in re-scheduling most essential work ahead of materials required to be deferred until printing funds became available in 1948.

Motion Pictures: During the fiscal year 1947 the Motion Picture Service completed six new motion pictures on funds made available by transfer, as follows:

FEEDING FARM ANIMALS	Common-sense rules for feeding livestock.
BATTLING BRUCELLOSIS	Causes and control of Bang's disease.
MEN WHO GROW COTTON	Present status and future possibilities of cotton.
BANKING ON THE LAND	History of the Federal Land Banks.
IT'S YOUR LAND	Need for soil conservation.
WHAT IS A FARM WORTH	Factors in appraising a farm.

The film "Men Who Grow Cotton" was produced as a cooperative project between subject-matter bureaus of the Department, the Motion Picture Service, and the ten Southern Cotton States, both on subject matter and on financing the costs of production and distribution. Additional pictures which have been started and will be completed during the fiscal year 1948 include films on white pine blister rust and forest fires.

In addition to producing films for Department agencies, the Motion Picture Service cooperated with the Massachusetts and Missouri State Extension Services in producing agricultural films, and performed laboratory and other technical services for Department agencies and for other Government departments. Supervision of the distribution and exhibition of Department films continued, and these films were shown to an estimated 10,000,000 people during the year. Sales of Department films, handled by an outside organization under contract, doubled those of the previous year.

Exhibits Service: During the fiscal year 1947 one large new exhibit group consisting of 13 individual sections on the general subject of Conservation -- Soil and Water was completed, as well as five new smaller units on poultry, eggs, 4-H Clubs, wool shrinkage, and "Our Changing Agriculture." In addition to these new exhibits, older ones

were renovated and 15 were extensively revised to bring them up-to-date both in subject-matter and presentation. All exhibits have been related for the 1947-48 exhibition season into the following groups:

1. Conservation of Farm and Forest	6 units
2. Livestock, Crops, and Farm Machinery	6 units
3. Livestock and Forage	8 units
4. 4-H Clubs	10 units
5. Better Living on the Farm	7 units
6. Better Farming	6 units
7. Livestock and Roughage	8 units
8. Domestic Enemies	7 units
9. Dairying and Poultry	8 units
10. Conservation -- Soil and Water	13 units
11. History of Agriculture	5 units

Forty-eight displays of the above exhibits or exhibit units were made during the year, 26 of them being large exhibits (requiring a carload or more of freight space) at state and inter-state fairs. Attendance at these 26 large fairs was 6,400,000. So far in fiscal year 1948, 12 carload showings have been made and 16 additional are scheduled; also several less-than-carload exhibitions are expected. During the year the Exhibits Service also completed the production of 1,000 silkscreen exhibits entitled "7 Steps for the Cotton Farmer" and in cooperation with the Extension Service arranged for their use at fairs, in windows, in lobbies, at schools, and at meetings. These portable exhibits are still in constant use. A new small silkscreen exhibit on water use in the West is projected for this year.

Press Service: To serve all inquiries for current information, including those made in person, by telephone, by wire, or in writing, the Press Service provided the following: Press releases were given immediate handling to wire services, many daily newspapers, and other publications maintaining full-time writers. In addition, many copies of current reports and releases were requested for administrative use and for writers and others who daily collect releases in which they are interested. The Daily Summary, a compiled digest of all releases issued each day including reports prepared in the Bureau of Agricultural Economics, the Production and Marketing Administration, the Office of Foreign Agricultural Relations, and other bureaus and agencies of the Department of Agriculture, was continued in use to avoid the extra burden and expense of supplying larger aggregate numbers of copies of many releases. The weekly Clip Sheet, a four-page release prepared primarily on departmental research for scientific and all publications and writers who request it, was continued. Likewise, Food and Home Notes was issued through the year as a six-page weekly release prepared primarily for women's pages and women's magazines, but available also to those who are engaged in distributing food and home information to others, including State extension editors and county home demonstration agents. Also the Press Service con-

tinued to supply to editors and writers, on request, agricultural pictures from its files; and a weekly letter was continued on new developments in program and research work of Department and cooperating agencies for the information of farm and livestock journal editors. Services for the negro newspapers, magazines and trade press, as well as special requests, continued on about the same basis as in prior years.

Radio Service: The Radio Service continued its weekly "RFD Letter," a news and background service for radio farm directors of more than 300 stations; "Farm Flashes," a script service for county and home demonstration agents to use in broadcasts over local stations; and a special service of farm news items on the radio feature, "Farm Fare." "Radio Roundup," a weekly service for directors of women's radio programs which was prepared by the Production and Marketing Administration but supervised by the Office of Information was discontinued at the end of June 1947.

Network cooperation: Cooperation in the production of two network broadcasts -- "National Farm and Home Hour" of NBC and "American Farmer" of ABC -- was continued. On each program, the Office of Information provides five minutes of news and furnishes, when requested, special features and speakers. The Radio Service also cooperates with CBS and furnishes special features for its broadcast, "Columbia Country Journal." A fourth network farm program, "Consumer Time," which was prepared by the Production and Marketing Administration and broadcast by NBC, was discontinued in July 1947. It is estimated that the total value of the radio time, furnished without charge, on these four network farm broadcasts during the fiscal year 1947 was $615,000.

Extension Radio training: The Radio Service continued its cooperative project with Extension Service of holding one- and two-day radio training schools for state and county extension workers. During the fiscal year 1947, 59 of these schools were held.

In addition to these three major types of services, the Radio Service provided numerous special services such as covering the 4-H Club Congress in Chicago and the 4-H Clup Camp in Washington, and stimulating radio recognition of National Home Demonstration Week.

(b) Printing and binding

Appropriation Act, 1948		$1,607,000
Transfers, 1948, from other appropriations (shown in detail below)		+205,000
Total anticipated available, 1948		1,812,000
Budget estimate, 1949:		
Direct appropriation	$1,857,000	
Transfers, 1949, from other appropriations (shown in detail below)	205,000	2,062,000
Increase, 1949		+250,000

SUMMARY OF INCREASES, 1949

For rebinding a minimum of Library reference publications	+30,000
For printing an increased number of soil surveys to partially meet a backlog of surveys ready for publication	+44,500
For publishing the most important and more urgently needed results of research work performed by the Department	+65,500
For stocks of new farmers' bulletins and farmers' bulletin reprints	+110,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Job work and binding				
(a) Binding	$26,274	$37,500	$67,500	+$30,000
(b) Emergency field printing	16,595	23,200	23,200	--
(c) Job work	540,274	746,200	746,200	--
(d) Letterheads	5,407	10,600	10,600	--
Total	588,550	817,500	847,500	+30,000(1)
2a. Reports, periodicals, and other regulatory, service and administrative publications:				
(a) Agriculture in the Americas	5,504	3,000	--	-3,000
(b) Agriculture Decisions	9,588	9,000	9,000	--
(c) Agricultural Situation and Separates	15,435	13,000	13,000	--
(d) Annual Reports	9,558	10,000	10,000	--
(e) Bibliography of Agriculture	11,990	17,500	17,500	--
(f) Congressional Documents	8,664	10,000	9,000	-1,000

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
(g) Consumers Guide	31,755	--	--	--
(h) Crops and Markets	5,872	3,000	--	-3,000
(i) Experiment Station Record	12,805	--	--	--
(j) Extension Service Review	5,916	6,000	7,500	+1,500
(k) Farmers' Bulletin Lists	11,913	12,000	12,000	--
(l) Foreign Agriculture	3,533	6,500	9,500	+3,000
(m) Fire Control Notes	2,122	2,500	2,500	--
(n) Indexes	1,290	6,100	8,600	+2,500
(o) Instructions and administrative reports	2,788	2,200	2,200	--
(p) Journal of Agricultural Economics Research	--	900	1,800	+900
(q) Journal of Agricultural Research	4,190	5,500	5,500	--
(r) Land Policy Review	1,327	900	--	-900
(s) Monthly List of Publications	2,148	2,000	2,000	--
(t) REA News	15,088	15,000	15,000	--
(u) Service and Regulatory Announcements	11,292	10,100	10,100	--
(v) Soil Conservation Magazine	7,651	8,000	8,000	--
(w) Unnumbered Publications, Reports and Reprints	33,276	20,000	20,000	--
(x) U. S. D. A.	6,386	7,500	7,500	--
(y) Yearbook composition	30,000	33,000	33,000	--
Total	250,091	203,700	203,700	--
2b. Yearbook (for special distribution)	180,000	207,000	207,000	--
3. Research and technical bulletins, expenditures for printing:				
(a) Bibliographical Bulletins	3,642	3,500	3,500	--
(b) Circulars - New and Reprints	6,782	18,000	35,300	+17,300
(c) Commodity Statistics	549	1,000	1,000	--

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
(d) Experiment Station Bulletins and Reports	4,250	14,000	26,000	+12,000
(e) Journal of Agricultural Research Separates	7,114	10,000	10,000	--
(f) Physical Land Surveys, Soil Conservation Service	855	5,000	5,000	--
(g) Reprints and Revisions, General	1,222	5,000	5,000	--
(h) Reprints of outside articles	4,732	5,000	7,000	+2,000
(i) Soil Surveys	113,016	115,500	160,000	+44,500
(j) Technical Bulletins, New and Reprints	13,604	35,000	65,000	+30,000
(k) Statistical Report (prepared by Yearbook Committee)	29,308	15,800	20,000	+4,200
(l) Statistical Separates from Statistical Report	--	1,000	1,000	--
Total	185,074	228,800	338,800	+110,000(2)
4. Farmers' Bulletins, and other popular publications, expenditures for printing:				
(a) Agricultural Information Series	4,862	10,000	10,000	--
(b) A.W.I. Series (Reprints only)	7,813	5,000	5,000	--
(c) A.A.A. Publications	19,657	20,000	20,000	--
(d) Farmers' Bulletins, New	9,500	17,000	41,000	+24,000
(e) Farmers' Bulletins, Reprints and Revisions	93,501	115,000	191,000	+76,000
(f) Forest Map Folders	2,005	15,000	15,000	--
(g) Leaflets, New	--	4,000	8,000	+4,000
(h) Leaflets, Reprints, etc.	6,356	8,000	12,000	+4,000
(i) Miscellaneous Publications--New and Reprints	59,721	60,000	60,000	--
(j) Posters	44,609	45,000	45,000	--
(k) Program Aid Series	40,627	45,000	45,000	--

Projects	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
(l) R.E.A. Publications	10,114	10,000	10,000	---
(m) Yearbook Separates	--	1,000	3,000	+2,000
Total	298,765	355,000	465,000	+110,000(3)
Total obligations, printing and binding	1,502,480	1,812,000	2,062,000	+250,000
Unobligated balance	15,920	--	--	--
Total available	1,518,400	1,812,000	2,062,000	+250,000
Transferred from:				
"Salaries and expenses, Forest Service", national forest protection and management	-15,800	-10,000	-10,000	
"Forest fire cooperation, Department of Agriculture"	-50,000	-50,000	-50,000	
"Exportation and domestic consumption of agricultural commodities, Department of Agriculture"	-65,000	-58,000	-58,000	
"Administration of the National School Lunch Act, Department of Agriculture"	-45,000	-35,000	-35,000	
"Conservation and use of agricultural land resources"	-32,000	-52,000	-52,000	
"Salaries and expenses, Fish and Wildlife Service, Department of the Interior", general administrative expenses	-1,100	--	--	
Total appropriation or estimate	1,309,500	1,607,000	1,857,000	

INCREASES

The increase of $250,000 in total funds available in this item for 1949 consists of:

(1) An increase of $30,000 to bind a minimum of Library reference publications.

Unbound periodicals and other thin publications present a serious problem in maintaining library collections and adequate servicing of requests for reference publications. The more pressing needs for printing de-

partment forms and publications has kept the allotment for binding and rebinding to the Department Library on a bare minimum basis for the most urgent binding needs. It is deemed essential to provide at least enough funds for a minimum of rebinding to enable the Library to preserve its publications and to provide more nearly adequate service at less cost.

(2) An increase of $110,000 to print a part of the backlog of research publications and soil surveys.

Critical Need for Research Printing. Publications of the Department's past research work is essential to provide basic and up-to-date information on the more recent scientific developments in agriculture. In view of the increased application of technilogical developments in farming, the need for disseminating the results of the Department's work is considered critical. The sum of $442,000 is the total estimate of requirements of the research agencies of the Department for printing research publications in 1948.

Allotments for these purposes in 1948 total $202,500. This indicates a backlog of $240,500 and carryover of that amount of unprinted research publications into 1949. For 1949 a comparable situation is anticipated. An increase of $65,500 is proposed to print the most important of the backlog for use of agricultural research technicians in the Department, the State experiment stations, agricultural colleges, other cooperating agencies, and others interested in agricultural research.

Soil Survey Accumulation. Because of increasing costs, and freeze on printing made necessary by the lack of printing funds in the latter half of the 1947 fiscal year, only about one-third of the soil surveys planned for printing in 1947 were sent to the printer. This, and the accelerated rate of preparing surveys for publication, will result in a backlog of approximately 15 surveys for publication at the end of this fiscal year, with 24 more coming forward in 1949, or a total of 39 for printing in 1949. It is proposed to print 11 of the surveys in 1949, which at current printing rates will cost $110,000, and 13 surveys at a cost of $50,000; a total cost of $160,000. The 13 surveys at $50,000 will be those with maps produced under a new and less expensive method of preparing maps for direct reproduction before turning them over to the printer. The 11 surveys mentioned are too far advanced in the preparation stage to change them over to the new, less expensive method for printing in either 1948 or 1949. With the present base of $115,500 in the 1948 appropriation, this will require an increase of $44,500 in 1949, which is considered critically necessary to accelerate the publication of soil surveys for use in coming readjustments in agriculture.

(3) An increase of $110,000 to restock, and keep current, supplies of farmers' bulletins and farmers' bulletin reprints.

Stocks of farmers' bulletins and leaflets on July 1 of each year since 1940 were as follows:

1940	10,930,647	1944	13,114,588
1941	16,927,452	1945	9,448,972
1942	17,634,691	1946	5,401,240
1943	16,108,599	1947	3,148,923

Stocks of all publications, including those supplied Members of Congress in substitute for farmers' bulletins, show a similar trend with 10,545,596 copies in 1947 compared to 15,300,576 in 1946 and 19,600,573 in 1941.

Outstanding quotas of farmers' bulletins are more than seven times July 1, 1947, stocks, compared to a normal ratio of around two to one. Even with an increased appropriation of about 32% for these bulletins in 1948, estimated stocks on July 1, 1948, will show a decrease to about 750,000 copies, based on a minimum distribution of 6,000,000 in 1948.

Thus an increase of $110,000 is urgently needed in 1949 to purchase 6,700,000 copies of bulletins required to make a minimum distribution in that year. With this increase the 1949 estimate for this purpose will total $250,000, the limitation for farmers' bulletins carried in the annual appropriation act. The critical need for the increase is expressed in the following table of farmers' bulletin distribution requirements and year-end stocks:

	1948		1949 With Increase of $110,000		1949 Without Increase of $110,000	
Estimated minimum distribution		6,000,000		6,000,000		6,000,000
Available:						
From July 1 Stock	3,149,000		749,000		749,000	
Purchases during year	3,600,000		6,700,000		3,600,000	
		6,749,000		7,449,000		4,349,000
Stock at end of year		749,000		1,449,000		--
Deficit in estimated requirements at end of year		--		--		-1,651,000

In the event that the proposed increase of $110,000 is not approved, it will be necessary to seriously curtail distribution of these bulletins including a reduction in the annual quota presently provided each Member of Congress.

Effect of Increased Printing Costs in 1948

Total Department printing needs for 1948 exceed available 1948 appropriation by approximately 30%. Estimated needs in 1949 are about 40% above the level of the 1948 appropriation. Wage increases at the Government Printing Office in December 1946, which were reflected in increased printing costs, were applicable for about one-half of the 1947 fiscal year, but are applicable to the full twelve months of the current fiscal year. Also, during part of 1947 the Government Printing Office used relatively low cost paper purchased from surplus government stocks, whereas this year higher priced paper must be obtained in the open market. (See attached chart). A further wage increase of 12-2/3% was approved in December, 1947. These conditions will use up a substantial part of the 1948 increase in appropriation and offset the effects of printing economy measures pursued by the Department more and more vigorously in recent years.

CHANGES IN LANGUAGE

The estimates include proposed change in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

> ***and including not to exceed $207,000 for printing and binding [two hundred thirty-one thousand two hundred and fifty] <u>not less than two hundred thirty thousand eight hundred and fifty</u> copies for the use of the Senate and House of Representatives of part 2 of the annual report of the Secretary (known as the Yearbook of Agriculture), as authorized by Section 73 of the Act of January 12, 1895 (44 U.S.C.241):***

This change in language is proposed because the Yearbook is now distributed to 99 members and officers of the Senate (550 copies each), and 441 members and officers of the House (400 copies each) resulting in a total of 230,850. The 231,250 was based on 99 members and officers in the Senate and 442 in the House, the number originally inserted in the language of this item for the purpose of distributing the 1942 Yearbook Reprint. The insertion of the words "not less than" is proposed to make it clear that it is intended to provide copies for the full membership of Congress whatever that membership might be in any given Congress.

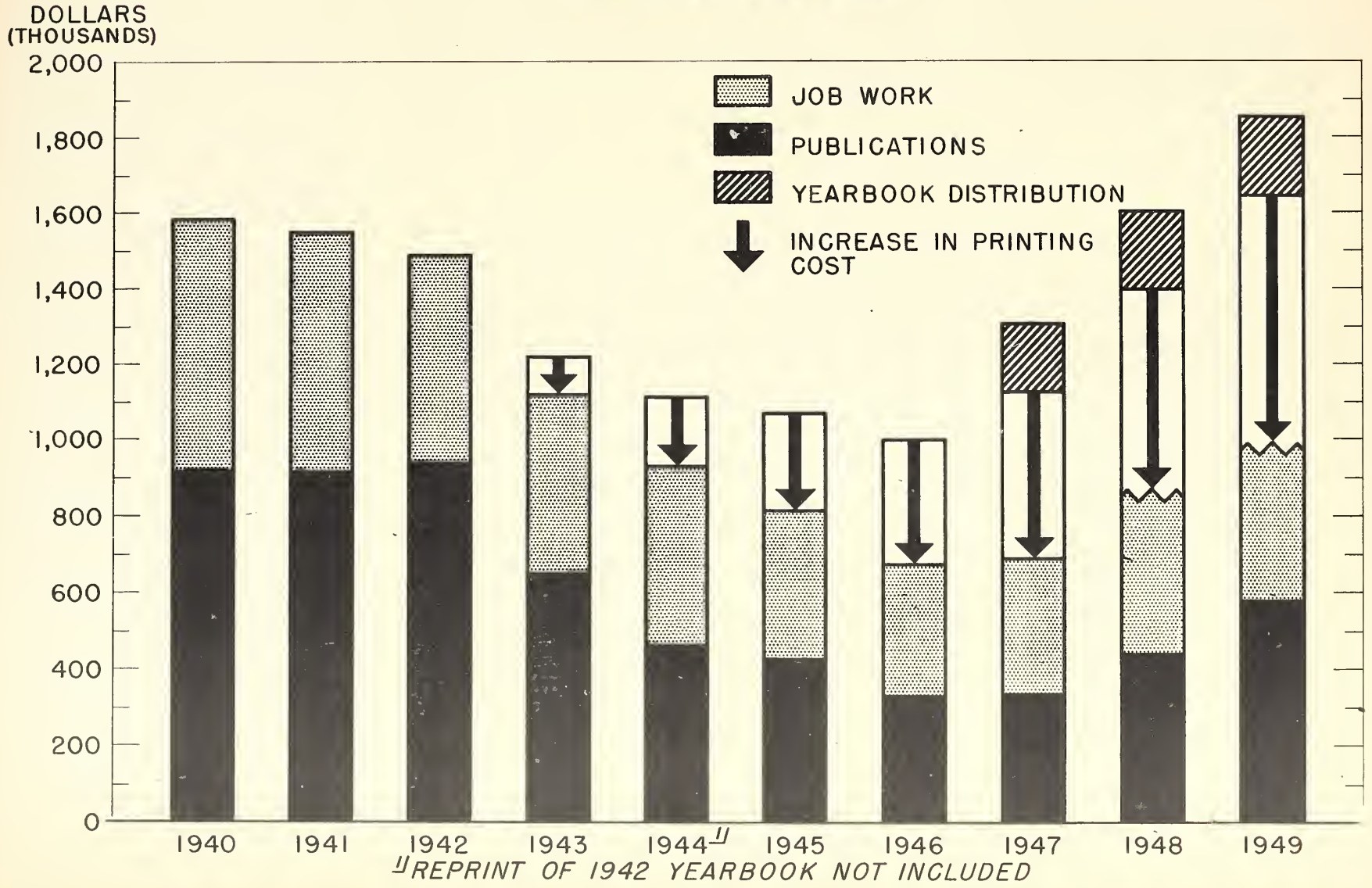
ITEMIZATION OF ESTIMATES

Appropriation: Printing and binding, Department of Agriculture

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimate, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$1,607,000	$1,857,000	+$250,000
Transferred from -			
"Salaries and expenses, Forest Service", national forest protection and management	10,000	10,000	--
"Forest fire cooperation, Department of Agriculture"	50,000	50,000	--
"Exportation and domestic consumption of agricultural commodities, Department of Agriculture"	58,000	58,000	--
"Administration of the National School Lunch Act, Department of Agriculture"	35,000	35,000	--
"Conservation and use of agricultural land resources, Department of Agriculture"	52,000	52,000	--
Total obligations	1,812,000	2,060,000	+250,000
Obligations by Objects			
Standard Classification			
06 Printing and binding	$1,812,000	$2,060,000	+$250,000
Grand total obligations	1,812,000	2,060,000	+250,000

USDA PRINTING AND BINDING EXPENDITURES 1940-1949



1/ REPRINT OF 1942 YEARBOOK NOT INCLUDED

STATUS OF DEPARTMENT PRINTING FUND

Current Situation: In the present fiscal year it is necessary to continue hand-to-mouth buying of standard, Department, and some bureau forms for stocking in the central supply division. Stocks in field installations continue to run shorter than most efficient stocking practice would dictate. Considerable work is again required to re-determine schedules for printing various research, as well as popular, publications as the backlog of such publications ready for printing continues to increase. A freeze on publications printing in the latter part of this fiscal year, such as in the past two years is not anticipated, although present indications point to an even greater shortage of Farmers' Bulletins in the later months of the fiscal year. This may necessitate a decrease in the number of bulletins listed to Members of Congress.

Cut-back in Publications Printing: Hand-to-mouth buying continued to be the practice in the procurement of printing during the fiscal year 1947. As in the previous fiscal year, printing of new publications was stopped at the end of February after the full effect of increases in printing costs arising out of wage increases about the middle of the fiscal year 1947 was determined. About $106,750 in pending requisitions were carried over into the 1948 fiscal year, in addition to the steadily increasing backlog of new research publications, soil surveys, and Farmers' Bulletin reprints.

Low Stocks of Bulletins: Stocks of Farmers' Bulletins and leaflets on July 1, 1947, totaled 3,148,923, which was about 58% of the stock on July 1, 1946, and about 19% of the supply on July 1, 1941. This decrease in stocks was especially significant since twice as many copies of Farmers' Bulletins were procured in 1947, but nearly the same number of copies were distributed as in 1946. The total number of new and reprinted publications procured during the 1947 fiscal year was 24% less than in 1946. As a result stocks of all publications on July 1, 1947, were 10,545,600 as against 15,300,580 a year previous.

Delayed Bulletin Printing: A total of 135 orders for needed reprints of Farmers' Bulletins were carried over to print in the fiscal year 1948. This is nearly double the total of 72 carried over into the 1947 fiscal year. As of September 1, 1947, almost 80% of the amount budgeted in 1948 for Farmers' Bulletins and substitute publications were obligated providing only about one-half of the normal supply of these publications.

Fewer Publications Issued: The portion of the printing fund available for general Department printing in 1947 was slightly over the amount available in 1946 ($1,015,000 compared with $1,000,000). With increased printing costs, 163 new publications were issued in 1947, compared with 262 issued in 1946. Publications issued in 1947 included 7 new Farmers' Bulletins, 10 new soil surveys, 17 annual reports, and such publications as the following examples:

Revised Feed Formulas for Chickens
Late Blight of Tomatoes
Carrot Production in the West and Southwest
Methods of Soil Analysis for Soil Fertility Investigations
Making and Storing Butter for Home Use
Modern Turpentining Practices
Soil Surveys of Certain Counties in California, Indiana, New York, Pennsylvania, Tennessee, and Texas
Marketing Margins and Costs Grains, Grain Products and Dry Edible Beans
Preparation of Ammonium Nitrate for Use as Fertilizer
Home Canning Process for Low Acid Foods
Manila Grass for Lawns
Soil Saving Methods

Agriculture Yearbook Resumed: Publication of the 1943-47 Yearbook of Agriculture, "Science in Farming," resumed the series of Yearbooks, broken after the issuance of the 1942 Yearbook, "Keeping Livestock Healthy." As authorized under a limitation in the 1947 Agricultural Appropriation Act, 231,250 copies were printed for distribution by Members of Congress. This is about one-half of the maximum authorized by the 1895 printing laws. The Department procured for its use 10,000 copies, compared to the 15,000 ordered of previous Yearbooks, and the 30,000 authorized as the legal maximum. The same number of copies of the 1948 Yearbook will be ordered for Congressional distribution and for Department use.

Reductions in Periodicals: In the last fiscal year the periodical, "Experiment Station Record," was discontinued. Several of the indexes to this journal remain to be published, some in the current fiscal year and some are planned for printing when completed probably at the beginning of the 1949 fiscal year. One periodical, "Consumers Guide," was discontinued at the beginning of the current fiscal year; the periodical, "Land Policy Review" is being replaced by a Journal of Agricultural Economics Research; and it is planned to combine "Agriculture in the Americas" and "Foreign Agriculture" primarily to keep within funds budgeted in view of increased printing costs. In addition, issues of several other periodicals will again be combined this fiscal year.

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Research and Marketing Act of 1946, Department of Agriculture: For coordination of all informational activities in connection with administration of the Research and Marketing Act of 1946	- -	$18,000	a/
Salaries and Expenses, Marketing Services: For coordination of informational activities in connection with the work of the famine emergency program	$49,418	- -	- -
Working Funds, Agriculture, (Office of Information) Advances from:			
War Department: Army Air Forces, for preparation and distribution of motion pictures	5,827	7,173	- -
State Department, for preparation and distribution of motion pictures	9,855	145	- -
Treasury Department, for preparation and distribution of motion pictures	8,449	49	- -
Veterans' Administration, for preparation and distribution of motion pictures	76,911	13,342	- -
Commerce Department, for preparation and distribution of motion pictures	19,592	11,408	- -
National Housing Agency, for preparation and distribution of motion pictures	5,353	4,647	- -
Federal Land Banks, for preparation and distribution of motion pictures	12,502	596	- -
Total, Working Funds .	138,489	37,360	- -

a/ Allotments under this appropriation for the fiscal year 1949 have not been determined.

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS, CONTINUED

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Miscellaneous Contributed Funds, Department of Agriculture (Office of Information):			
For preparation and distribution of exhibits ..	2,746	3,000	3,000
For preparation and distribution of motion pictures	10,722	6,507	- -
Total, Miscellaneous Contributed Funds ..	13,468	9,507	3,000
Supply and Distribution of Farm Labor: a/For information services for the farm labor program	6,644	1,313	- -
Penalty Mail Costs, Department of Agriculture (Allotment to Office of Information): For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress	46,551	68,200	73,315
TOTAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	254,570	134,380	76,315

a/ Allotment from funds appropriated on a calendar year basis for the farm labor supply program in a separate act.

PENALTY MAIL ESTIMATE
Sec. 2, Public Law 394, 78th Congress
(Allotment to Office of Information)

	1947	1948	1949	Increase (+) or decrease (-) 1949 over 1948
Category 1	$44,901	$66,100	$71,060	+$4,960
Category 2	1,650	2,100	2,255	+155
Total	46,551	68,200	73,315	+5,115(1)

(1) The increase of $5,115 for 1949 is for the purpose of providing additional funds required to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20.00 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

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Category 1 consists of Department periodicals sent only to addressees who have specifically requested that they be retained on mailing lists which have been circularized to keep the number to a minimum, estimated at 1,500,000 in 1948; initial mailings of new publications of farmers' bulletins, leaflets, research bulletins, miscellaneous circulars, etc., estimated at 650,000 in 1948; individual requests for publications to be mailed by the Superintendent of Documents, estimated at 560,000 in 1948; current information, such as radio editors' letters, radio farm flashes, information letters to women's page editors, USDA summary, etc., estimated at 840,000 in 1948.

The increase in the number of requests for publications and the increased initial mailings of publications will be offset by an anticipated curtailment of periodical and other mailing lists.

Category 2 consists of correspondence and business transactions of the Office, form letters regarding availability of publications and replies to requests for information.

LIBRARY, DEPARTMENT OF AGRICULTURE

Appropriation Act, 1948	$660,000
Budget Estimate, 1949	660,000
Change, 1949	- -

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
1. General administration	$55,805	$57,155	$57,155
2. Acquisition of publications, preparation for use, and distribution	179,557	207,143	207,143
3. Bibliographical services	111,836	127,488	127,488
4. Reading and reference services	126,246	122,192	122,192
5. Field library services	145,385	146,022	146,022
Unobligated balance	21	- -	- -
Total available	618,850	660,000	660,000
Transferred from:			
"Administrative expenses, Commodity Credit Corporation, Department of Agriculture"	-850	- -	- -
"Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act Costs)	-66,000	- -	- -
Total appropriation or estimate	552,000	660,000	660,000

ITEMIZATION OF ESTIMATES

Appropriation: Salaries and expenses, Library

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates 1949	Increase(+) or decrease(-)
Appropriation or estimate	$660,000	$660,000	- -
Reimbursements for services performed	10,000	10,000	- -
Payments received from non-Federal sources	40,000	30,000	-10,000
Total obligations (inclusive of reimbursements)	710,000	700,000	-10,000

Obligations by Objects

Standard Classification			
01 Personal services	622,247	616,247	-6,000
02 Travel	2,425	2,425	- -
03 Transportation of things	1,400	1,400	- -
04 Communication services	5,100	5,100	- -
05 Rents and utility services	3,800	3,800	- -
07 Other contractual services	3,935	3,935	- -
08 Supplies and materials	17,900	13,900	-4,000
09 Equipment	53,193	53,193	- -
Grand total obligations	710,000	700,000	-10,000
Reimbursements for services performed	-10,000	-10,000	
Payments received from non-Federal sources	-40,000	-30,000	
Total available (exclusive of reimbursements)	660,000	660,000	

WORK UNDER THIS APPROPRIATION

Current Activities: The Department Library serves as the central library for the department and as the National Agricultural Library, collecting all agricultural information obtainable from published material and making that information available. It also provides books and periodicals in other general fields necessary for efficient administration of the Department's work. The Department Library has been called upon increasingly as a basic source of agricultural literature and of library management practices. Significant is an increased circulation and reference load in fiscal year 1947 of 1,979,041 with an average staff of 186 as contrasted with a circulation and reference load in fiscal year 1942 of 846,702 with an average staff of 225. Among the activities now in process, the following are selected as typical:

1. To acquire foreign and domestic publications in the field of agriculture through purchase from commercial sources and exchange agreements with different countries and through cooperative acquisition projects with the Library of Congress and other research libraries.

2. Preparation of agricultural bibliographies with an increasing coverage of the world's agricultural literature.

3. Providing reading and reference services to patrons of the Library, including farmers, private research corporations, colleges and universities, etc., through answering reference questions verbally or by telephone and mail, furnishing desired publications on loan, verifying references, shelving and maintaining the collection.

4. Facilitating the execution of the Department's programs by making available published material to the man-on-the-job, wherever he may be stationed, through 19 field libraries serving as outlets for the main Library as well as reservoirs of information near to the field workers. Through these library services provided to field workers, the stocking of a large number of relatively little used books in field offices is unnecessary.

Selected Examples of Work Volume and Improvements in Service:

1. The circulation and reference load reached a new high of 1,979,041 in 1947 compared with 1,916,253 in 1946.

2. Acquisition of foreign publications increased during the past fiscal year through purchases from increased funds made available for this purpose in 1947 as well as through exchange agreements. Lists of exchanges with 15 different countries were prepared and in

9 countries the exchange records were brought up to date. Cooperative acquisition projects with the Library of Congress and other research libraries added 1,543 foreign publications to the collection.

3. A trend of the increasing amount of material being published, which this Library as the National Library for Agriculture should collect, is clearly indicated by the increase of 43% in the number of publications received in 1947 as compared with 1946. There were also 867,787 individual issues of current serial publications handled during 1947 as compared with 722,100 in 1946. The increased acquisition program has resulted in a comparable increase in all operations of the Library.

4. Integration of the field library which served the Farm Credit Administration in Kansas City with the main collection and the merger of two field libraries at New Orleans increased the workload considerably due to necessary changes in records and disposal of surplus publications.

5. During the past year a much larger coverage in listing the world's agricultural literature was accomplished by including 10,269 more items in the Bibliography of Agriculture than in the prior year.

6. A Bibliography on Aviation and Economic Entomology was published in printed form and work is now in process on several additional bibliographies.

7. The photo-reproduction service in the Library completed 81,218 individual orders representing 2,543,981 pages of photoprints and microfilm, an increase of 54 per cent over 1946 and 175 per cent over 1945. This part of the library work is self-supporting. Collections received and other fiscal operations relating to this service have had corresponding increases.

8. Publications circulated in Washington increased approximately 28 per cent (from 379,390 in 1946 to 485,739 in 1947). The reference questions increased approximately 26 per cent (from 98,609 in 1946 to 136,379 in 1947). This increased work load was handled without increased staff.

9. Due to a severe reduction in binding funds made available to Library only 3,453 volumes were bound for the year, the lowest amount bound in any year. As the annual binding needs for only one copy of current material are at least 13,500 volumes, 10,000 volumes have been added to a backlog now estimated to be at least 150,000 volumes.

10. Increased benefits to each of the four Regional Research Laboratories has been accomplished, without increasing the staff, by making Library personnel and facilities available after working hours.

PRINCIPAL OVERALL VOLUME OF WORK STATISTICS

Actual Fiscal Years 1944-1947
Estimated 1948-1949

	Actual				Estimated	
	1944	1945	1946	1947	1948	1949
Titles catalogued	10,465	11,073	11,386	a/ 9,860	20,000	20,000
New cards added to library catalog	63,117	104,596	101,394	b/ 82,954	100,000	110,000
Loans of books or periodicals and reproductions supplied	1,304,799	1,667,031	1,735,495	1,776,668	1,775,000	1,775,000
Serial publications entered	295,997	351,922	281,759	339,627	350,000	380,000
Reference questions answered	154,759	196,064	180,758	202,373	200,000	200,000
Volumes bound c/	5,236	9,544	6,504	3,453	9,000	13,500
Obligations for books, periodicals and other publications	$ 43,939	$ 44,872	$ 42,738	$ 48,534	$ 51,200	$ 51,200
Obligations for newspapers	$ 1,164	$ 1,077	$ 1,191	$ 1,101	$ 1,200	$ 1,200

a/ Fewer titles were cataloged due to excessive turn-over of personnel and change in cataloging rules.

b/ The decline in 1947 was due to the suspension of the branch inventories work owing to urgency of other work, and abnormal conditions due to turn-over in personnel at the end of the fiscal year.

c/ Including Washington and field - Field statistics not available for 1944 and 1945 and therefore not included.

Statement of Obligations under Supplemental Funds

Item	1947	Estimated 1948	Estimated 1949
Working Funds, Agriculture, (Library) Advance from Public Buildings Administration:			
For expenses in connection with the recentralization of employees from Kansas City and St. Louis, Missouri	$270	$27	- -
Advance from Bureau of Entomology and Plant Quarantine:			
For special bibliographical services on bee culture	844	2,806	- -
Advance from Production and Marketing Administration:			
For special bibliographical services on transportation and marketing research	- -	900	- -
Advance from Department of Commerce:			
For supervision of the construction and pilot test studies on a camera mechanism in connection with rapid-selection of reference entries	- -	10,000	10,000
Total working funds	1,114	13,733	10,000
Return of Excess Deposits for Reproduction of Photographs, Mosaics, and Maps (Library):			
Trust fund for refund of moneys received for photographic reproduction in excess of cost of making such reproductions	2,869	300	311
Penalty Mail Costs, Department of Agriculture (Allotment to Library):			
For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress	2,698	3,375	3,630
Cooperation with American Republics (Transfer from State Department):			
For furnishing micro-film services to Latin-American scientists, cooperators, and agricultural attaches a/	995	2,000	3,073
TOTAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	7,676	19,408	17,014

a/ Detailed schedules for this item appear under the State Department Chapter of the Budget.

PENALTY MAIL ESTIMATE
Sec. 2, Public Law 364, 78th Congress
(Allotment to Library)

	1947	1948	1949	Increase (+) or decrease (-) 1949 over 1948
Category 1	$262	$325	$350	+$25
Category 2	2,436	3,050	3,280	+230
Total	2,698	3,375	3,630	+255 (1)

(1) The increase of $255 for 1949 is for the purpose of providing sufficient funds with which to meet increased costs to the Post Office Department for handling penalty mail. The Post Office Department has advised that payments into the Treasury for cost of handling penalty mail in 1949 will be at the rate of $20 per thousand pieces of mail, an increase of $1.40 per thousand over the 1947 mailings.

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Category 1 consists of the Bibliography of Agriculture and various other bibliographical bulletins, library lists, etc., furnished to technicians and research workers of the Department, depository libraries, and others who have specifically requested these publications to enable them to keep abreast of the material which has been written in their respective subject-matter fields.

Category 2 consists of correspondence required in connection with answering requests for information on publications filed in the Library and in connection with the loan, reproduction, and exchange of publications with other libraries. Included also is the administrative correspondence necessary in the acquisition of newpublications and for carrying on the business of the nineteen branch and sub-branch libraries.

BUREAU OF AGRICULTURAL ECONOMICS

Summary of Appropriations, 1948 and Estimates 1949

Item	Appropriations, 1948	Budget estimates, 1949	Increase (+) or decrease (-)
Salaries and expenses:			
Economic investigations	a/$1,988,500	$1,988,500	- -
Crop and livestock estimates	2,375,400	2,375,400	- -
Total, direct annual appropriation	4,363,900	4,363,900	- -

a/ Excludes $11,500 proposed transfer in the estimates to "Salaries and Expenses, Marketing Services," marketing farm products.

(a) Economic Investigations

Appropriation Act, 1948	$2,000,000
Proposed transfer in estimates to "Salaries and Expenses, Marketing Services," marketing farm products (incident to the transfer of certain marketing research functions to the Production and Marketing Administration)	-11,500
Total anticipated available, 1948	1,988,500
Budget estimate, 1949	1,988,500
Change, 1949	- -

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
1. Economics of production	$1,267,277	$1,016,300	$1,016,300
2. Prices, income and marketing	780,460	706,200	706,200
3. Farm population and manpower	349,900	266,000	266,000
Unobligated balance	79,756	- -	- -
Total available	2,477,393	1,988,500	1,988,500
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+14	- -	- -
Transfer in estimates to "Salaries and expenses Marketing Services", marketing farm products	+16,200	+11,500	- -
Received by transfer from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act Costs)	-250,000	- -	- -

(Continued on next page)

Project	1947	1948 (estimated)	1949 (estimated)
"Administrative expenses, Commodity Credit Corporation, Department of Agriculture"	-80,150	- -	- -
Total appropriation or estimate	2,163,457	2,000,000	1,988,500

ITEMIZATION OF ESTIMATES

Appropriation: Salaries and expenses, Bureau of Agricultural Economics economic investigations

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$2,000,000	$1,988,500	-$11,500
Reimbursements for services performed	75,000	75,000	- -
Total available for obligation	2,075,000	2,063,500	-11,500
Comparative transfer to "Salaries and Expenses, Marketing Services" marketing farm products	-11,500	- -	+11,500
Total obligations (inclusive of reimbursements)	2,063,500	2,063,500	- -

Obligations by Objects

Standard Classification

01	Personal services	1,844,000	1,844,000
02	Travel	95,000	95,000
03	Transportation of things	10,000	10,000
04	Communication services	16,000	16,000
05	Rents and utility services	7,000	7,000
07	Other contractual services	79,000	79,000
08	Supplies and materials	11,000	11,000
0°	Equipment	1,500	1,500
	Grand total obligations	2,063,500	2,063,500
	Reimbursements for services performed	-75,000	-75,000
	Total available (exclusive of reimbursements)	1,988,500	1,988,500

WORK UNDER THIS APPROPRIATION

The Bureau of Agricultural Economics is the primary agency of the Department for collecting and publishing agricultural statistics, and for conducting economic investigations or economic research and disseminating the results thereof. In addition, the Bureau serves as a staff agency of the Secretary's Office and as a general service agency to the other agencies in the Department, to the Congress, and to other individuals, agencies, etc., interested in agricultural statistics or agricultural economics research. The service activities of the Bureau have been increasing and have constituted a heavy load during the past year. In addition to the contribution of data and analyses and the time of staff members to such major items as the Krug Report on National Resources, the President's Committee on Foreign Aid, the preparation of a statement on the long-time agricultural outlook which is nearing completion as a result of a request from the Chairman of the House Committee on Agriculture, the Bureau has been called upon to supply a steady stream of data and material to the Secretary's Office, members and Committees of Congress, The Council of Economic Advisers, the Food and Agriculture Organization, farm organizations, business concerns, and other individuals or agencies interested in agriculture and food. In addition, the Bureau continuously carries forward situation or outlook work which serves as the basis for the outlook work of the Federal-State Extension Services. (For general review of trends in agriculture and agricultural prices see Tables 1 and 2 and Figures 1 and 2 following text.)

Economic Investigations: Three main fields of work are covered under this appropriation as follows:

Economics of Production which relates not only to the ownership, valuation, financing, and operation of farms as individual units, but also to the utilization of labor, equipment, land and water in their broader economic aspects.

Prices, Income and Marketing which cover research on supply, demand and price relationships; consumption and general utilization of farm products; and economic problems of marketing and transportation.

Farm Population and Manpower which covers statistics of farm population and migration; levels and standards of living; rural organization; and farm labor and wages.

Following are selected examples of recent accomplishments:

A study of Farm Production Efficiency indicates that agriculture has made remarkable gains in efficiency over the last quarter of a century. Total physical inputs (farm labor, power, and other resources) per unit of farm output decreased about 25 percent during this period. Farm mechanization has been a dominating factor in these developments. The shift from animal to mechanical power has had two notable results: (1) A steady increase in the productivity of farm labor. Progressively fewer farm workers have produced increasingly larger quantities of food and fiber (Figures 3 and 4). (2) It has released about 55 million

crop acres from growing horse and mule feed to producing food and fiber for human use. Other improvements, chiefly increased yields of crops and livestock, have aided greatly in raising production efficiency. Compared with a quarter century ago we now are getting much higher production per acre, per animal, per man hour, per unit of machinery and power, and per unit of all production resources.

A study of Cattle Ranching in the Northern Great Plains has been completed in cooperation with the North and South Dakota Agricultural Experiment Stations. The reports describe the characteristics of ranches which have successfully survived both droughts and depressions. Adequate size of operating unit, security of tenure, feed and financial reserves and optimum rates of stocking are extremely important in surviving adverse periods.

A recent report of a cooperative study of the Place of Peanuts in Southern Agriculture compares the efficiency of peanut production by soil groups classified according to their suitability for peanuts in the different areas. Significant differences exist among areas and groups of soils in the profitableness of peanut production. In most areas there is direct competition between cotton and peanuts. Estimated peanut yields vary from over 1,500 pounds on the best soils in North Carolina, to less than 300 pounds on some soils in the Southwest that were classified as only fair for peanuts. Methods of production are also important. In the sub-humid areas the use of tractor power, windrowing and other practices have reduced the labor used per ton of peanuts to about one-half the usual quantity required in the eastern part of the belt.

Two issues of the new Farm Cost Situation were released last year analyzing the outlook for labor, machinery, fertilizer, feed and other cost items.

The latest report on the Farm Real Estate Market shows that for the country as a whole land values are still rising. In November 1947 they were 97 percent above their 1935-39 average, and only 4 percent below the 1920 peak (Figures 5 and 6). During the last 4 months the land market has levelled off in the South Atlantic and Pacific States, but has shown sharp increases in the Northern Plains States.

Further work has been done on Farm Rental Arrangements. Your Farm Lease is a circular which discusses briefly the elements of a good farm lease. Nearly all of the 30,000 copies of this report have been requested since it became available in September 1947.

The Graphic Summary of Land Utilization, prepared in cooperation with the Bureau of Census, shows the present use of our land resources and the major changes over a period of years (Figure 7).

The report on Federal Rural Lands brings together summary data on extent, character and use of all federal lands (Figure 8). The information is presented by administering agencies, by States and by types of land uses.

Work on the Annual Balance Sheet of Agriculture has been continued and improved. Agriculture had assets valued at 111 billion dollars on January 1, 1947 - an increase of over 100 percent since 1940. Although this increase results primarily from higher prices of land and other physical assets the large expansion in financial assets (deposits, savings bonds and currency) represents an element of strength in agriculture's financial position. The total of these "liquid" assets was 22 billion dollars on January 1, 1947 (Figure 9).

Credit Studies recently completed indicate that only 29.2 percent of the Nation's farms had mortgages in 1945 compared with 38.8 percent in 1940. The total farm mortgage load had shrunk from 6.6 billion dollars in 1940 to 4.8 billion dollars in 1947. This is in sharp contrast with the World War I period, when the debt expanded rapidly. But the long term downward trend in farm mortgage debt was reversed from 1946 to 1947; and there was a 2 percent increase in the total. However, the differences between States were significant. (Figure 10.)

Farm Real Estate Taxes averaged 12 percent higher per acre in 1946 than in 1945. The index advanced from 199 to 222 (1909-13 = 100). This is the third consecutive year that this index has risen. It is now at the highest point since 1931 (Figure 11).

Food Consumption and Supplies: Acute food shortages in Europe and the need of supplies from the United States increased the demand for statistical analysis of the food supplies in the United States and of the domestic requirements. The Bureau of Agricultural Economics has had to deal with such questions as: What is the effect of exports upon food prices? How much food and what kinds can be spared this year? What would be the probable effect of the European recovery plan upon the demand for foodstuffs from the United States?

The Bureau has continued regular statistical summaries and analysis of supplies, distribution, and prices of foodstuffs, and cooperates with the Food and Agriculture Organization in collecting data and analyzing the overall food supply situation for use in considering feasible export programs.

Feed Supplies are shortened by the reduction in the corn crop. This gives rise to many problems to be considered with reference to exports, grain price relations, and the outlook for livestock production in 1948. The demand for statistical service in this field has been unusually heavy in recent months.

Farm Income: The current monthly estimates of the receipts of farmers from farming, and the annual estimates of expenditures and net income, have been maintained for the year. Farm marketings may exceed 30 billion dollars. Production expenditures have reached a record high of about 17 billion dollars. Allowing market values for what the farm furnishes the home, the net income for the year probably will be about 18 billion dollars. This high level of income is due to a moderate increase in marketings at record high price levels. The outlook at present is that marketings in 1948 will be in lower volume and that farm costs will be higher.

Marketing Costs are rising. (Figure 12.) Advancing wage rates is a very important factor in increasing the costs of distribution. For the present, the advance in the prices of many farm products has been sufficient to cover these increased costs and yield the farmer larger returns for his products. But, we are now facing a dangerous situation such as developed after the first World War. A decline in the overall farm prices would result in a very sharp decline in the net returns to farmers. Some research is under way to provide the basic data for use in determining how distribution costs may be reduced so as to lessen the shock that may come from readjustments to lower price levels for farm products. The marketing charges have increased about 50 percent over prewar and the higher wage levels are likely to maintain them at a high level. Advancing Railway Freight Rates is a very important factor in the cost of marketing farm products. The advance in rates is particularly burdensome on some farm products such as citrus fruits, the prices of which are now about prewar levels. The maintenance of these advanced rates will contribute to the depressing effect of any general decline in the prices of farm products.

Special surveys, including Consumer Preference Studies in the marketing field are made. A certain amount of basic work is carried on under the regular funds; in addition studies are made under the direction of the regular staff but financed from funds allotted from other sources. All of the analyses of data on the study of Women's Preferences in Textiles have now been completed and the results have been released. Work has also been completed on a study, made at the request of the State and Federal Extension Service, of the Extension Service in Vermont, the results of which are now being used in that State to improve the Extension program.

The Bureau's estimates indicate that Farm Population declined from 30 million to 25 million during the five war years, then after the war regained 2½ million making a total of 27½ million. These statistics are published for major geographic divisions and are widely used. (Figures 13 and 14.)

The Farm Labor studies have provided a continuous record of changes in the "farm work force", wage rates paid to different types of workers for different types of work, and other information needed in arriving at an understanding of the farm situation and the agricultural outlook.

Widely used results of the farm-population research are farm and rural non-farm level of living indexes by counties, which show variations in levels of living of farm people from county to county throughout the United States. Calculation of county indexes based on data from the 1945 Census, as well as some revision of the 1940 calculations, have recently been completed and released. Comparisons between farm and non-farm levels of living show that levels of living are considerably lower on farms than in non-farm areas. In the farm population work on levels of living there is active cooperation with the Bureau of Human Nutrition and Home Economics.

In cooperation with Land Grant Colleges, Rural Organization Studies are made which show changes in community and county organization for service to farm people. The application of broad State or National programs to local areas with varying situations has always been a serious problem and the results of these studies are helpful, particularly to the Extension Service.

(b) Crop and Livestock Estimates

Appropriation Act, 1948	$2,375,400
Budget estimate, 1949	2,375,400
Change, 1949	- -

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
Agricultural estimates	$2,353,399	$2,375,400	$2,375,400
Unobligated balance	22,051	- -	- -
Total available	2,375,450	2,375,400	2,375,400
Transfer in estimates from "Salaries and expenses, Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration"	-3,450	- -	- -
Received by transfer from "Exportation and Domestic Consumption of Agricultural Commodities, Department of Agriculture" (for Pay Act Costs)	-240,000	- -	- -
Total appropriation or estimate	2,132,000	2,375,400	2,375,400

ITEMIZATION OF ESTIMATES

Appropriation: Salaries and expenses, Bureau of Agricultural Economics crop and livestock estimates

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949
Appropriation or estimate	$2,375,400	$2,375,400
Reimbursements for services performed	20,000	20,000
Total obligations (inclusive of reimbursements)	2,395,400	2,395,400

Obligations by Objects

Standard Classification

01	Personal services	$2,052,259	$2,052,259
02	Travel	130,700	130,700
03	Transportation of things	7,500	7,500
04	Communication services	31,000	31,000
05	Rents and utility services	52,616	52,616
07	Other contractual services	53,325	53,325
08	Supplies and materials	55,500	55,500
09	Equipment	12,500	12,500
	Grand total obligations	2,395,400	2,395,400
	Reimbursements for services performed	-20,000	-20,000
	Total available (exclusive of reimbursements)	2,375,400	2,375,400

WORK UNDER THIS APPROPRIATION

Current statistics on the acreage, yield, production, stocks and utilization of farm products, prices received and prices paid by farmers, farm employment and wages, and many other types of agricultural information are collected, analyzed and issued as official Departmental estimates under this appropriation. An outstanding feature of the crop and livestock reporting work is the rapidity with which the primary data are summarized and published after being collected--on major reports within a week or ten days. The Bureau issues over 500 separate statistical releases during the year, containing current national estimates and generally estimates by States. Some of these concern only a single subject, such as cotton, grain stocks, etc., while others are large, comprehensive reports covering many commodities, as in the monthly crop reports, and agricultural price reports. Cooperating State agencies in 40 States are contributing approximately $450,000 in fiscal year 1948 to carry out related projects that supplement the Federal program of reports by developing the more detailed within-State information desired by the official State cooperating agency.

A listing of the various crop and livestock estimates and reports issued under the Federal program, and this appropriation, was included in the House hearings on the 1948 Agricultural Appropriation Bill (pp. 427-430). Because of the insistent pressure for the fullest possible information on these current agricultural matters, the Bureau is endeavoring to maintain the scope of these reports without major curtailment, although increasing costs for salaries, supplies and other expenses are requiring some adjustments.

Selected examples of recent progress:

Procedures for preparing crop acreage reports and monthly crop reports were further streamlined to permit more time for needed analysis and more effective presentation of the data for public use. In addition to the regular monthly forecasts, special mid-July and mid-August reports on the 1947 corn crop were issued because of the critically delayed growth of the crop.

A publication was issued also presenting revised estimates of acreage, yield and production of all field crops, commercial truck crops and seed crops for the period 1939-44, occasioned by a review of the previous estimates for these years when the final 1945 U. S. Census data became available. Similarly reviewed and revised estimates of January 1 numbers of livestock and poultry, by classes, were issued for the years 1940-45. A report was issued on soybean production, disposition and value containing estimates for the years 1924-44; also a report on hybrid corn acreage for the years 1933-45.

A special report was issued on commercial apple production by varieties for the period 1942-46. To meet the demand for background data a report was issued for the first time containing estimates of citrus fruit acreage for the period 1924-47. The same report contained estimates of

production, utilization and value of citrus fruits, 1941-47. The acreage, production, utilization and value of tree nuts, 1909-45, was embodied in another report.

Reports were published containing State and National estimates on sow farrowings, by months, 1930-46, monthly egg production 1940-44, farm production, disposition and cash receipts, for chickens and eggs, and turkeys, both reports covering the period 1940-44, and farm production and disposition of milk, and the gross farm income from milk, 1940-44.

Other reports supplying long series of estimates on particular commodities, including revisions, for convenient reference, are ready or in process for publication, including tobacco, peanuts, wheat, livestock, and non-citrus fruits.

Within the last year there has been widespread discussion as to ways in which the official index of prices paid by farmers might be revised, and considerable preparatory work has been done looking toward bringing the weights used in combining the several prices more nearly to date, as well as expanding the number of commodities in the index. In this connection a series of expenditure questions were included in the Bureau's enumerative survey last January. Also, a survey of electric and telephone services on farms has been made and a preliminary report issued on the percentage of farms having telephone, radios, and electricity.

To satisfy partially the need for commodity prices by utilization, kind of product, and point of sale, and to improve the quality of existing price series, special projects have been or are being developed. For example, publication of average wholesale milk prices paid to farmers by cheese factories, butter plants, and condenseries has been started. Reports were inaugurated showing current monthly prices paid for milk and butterfat in cream by creameries and cheese factories on the basis of utilization. Average State wholesale prices and the average butterfat test of milk bought primarily for manufacture, and for fluid consumption, are expected to be published in the near future.

Collection of prices received by farmers for beef cattle, by general classes, through use of sample enumeration supplemented by mailed questionnaires has been inaugurated in two States (Nebraska and Oregon), and is expected to be under way in 8 more States within the next few months.

Monthly series on farm employment and farm wage rates have been published for many years without major modification. A shift to the use of a much sharper definition of farm employment is now under way, facilitated by five enumerative surveys, the most recent being in January 1947, and three special mailed surveys to a 150,000-name list obtained from the Census, the most recent in April 1947. These eight nationwide surveys in which the new employment definitions were used are the primary basis for the revision of the official series of farm employment estimates which is now nearing completion. Weights obtained from these surveys will also make possible a much needed revision of the wage rate series.

Trends in agriculture and related data

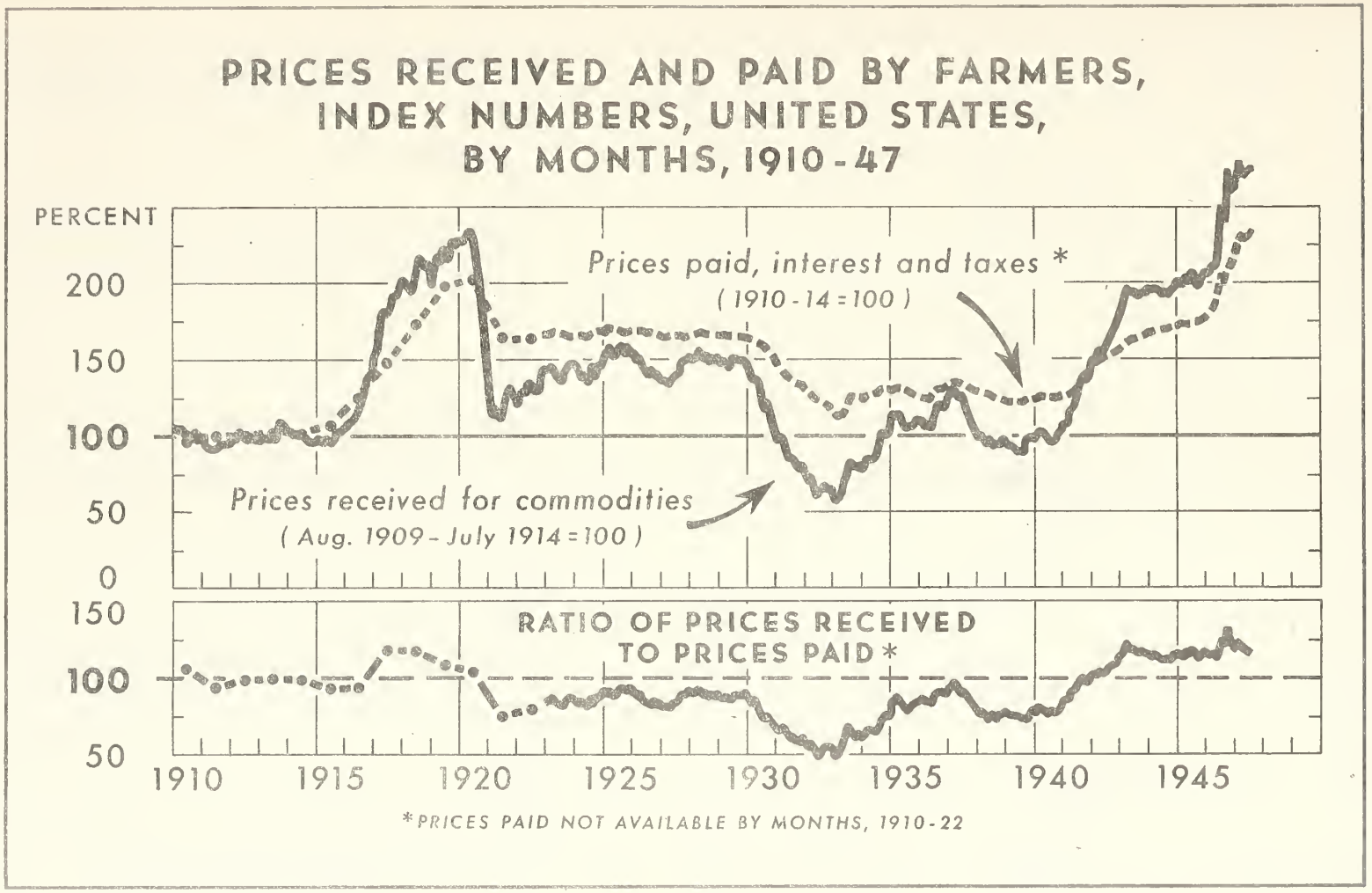
Year	Farm population	Farm production	Civilian per capita food consumption	Net income of farm operators 1/	Production expenses	Prices farmers Get 2/	Prices farmers Pay 3/	Prices farmers Ratio	Farm wage rates	Farmer's share of consumer's food dollar	Farm land values (1912-14=100) 5/	Farm mortgage debt
	Millions	1935-39 = 100		Mil.dol.	Mil.dol.	1910-14 = 100				Cents		Bil. dol.
1947 4/	28	136	117	18,000	16,600	278	231	120	408	6/54	159	4.9
1946	27	136	118	14,889	14,044	233	193	121	378	53	142	4.7
1945	25	133	114	12,536	12,396	202	172	117	350	54	126	4.9
1944	26	136	112	12,399	11,788	195	169	116	315	53	114	5.3
1943	27	128	106	12,187	10,848	192	162	119	264	52	99	5.8
1942	29	124	107	9,209	9,360	159	150	106	201	48	91	6.3
1941	30	113	108	6,474	7,420	124	132	94	154	44	85	6.4
1940	30	110	105	4,541	6,469	100	125	80	126	40	84	6.6
1939	31	106	104	4,459	6,088	95	124	77	123	39	84	6.8
1938	31	103	100	4,327	5,744	97	126	77	125	39	85	7.0
1937	31	106	100	5,139	6,126	122	133	92	126	43	85	7.2
1936	31	94	99	5,062	5,581	114	127	90	111	41	82	7.4
1935	32	91	96	4,484	5,111	109	130	84	103	40	79	7.6
1934	32	93	99	3,759	4,727	90	129	70	95	34	76	7.7
1933	32	96	97	2,681	4,374	72	120	60	85	33	73	8.5
1932	31	96	98	1,832	4,574	68	124	55	96	32	89	9.1
1931	31	102	100	2,744	5,634	90	141	64	130	36	106	9.4
1930	30	98	100	4,329	7,059	128	160	80	167	39	115	9.6
1929	30	99	102	6,044	7,780	149	167	89	180	42	116	9.8
1928	30	102	102	5,695	7,855	151	168	90	179	43	117	9.8
1927	30	98	102	5,706	7,545	142	166	86	179	41	119	9.7
1926	31	100	102	5,699	7,505	146	168	87	179	42	124	9.7
1925	31	97	101	6,103	7,464	156	169	92	176	43	127	9.9
1924	31	98	102	5,128	7,495	143	167	86	173	41	130	10.7
1923	31	94	101	4,842	7,125	143	167	86	169	40	135	10.8
1922	32	91	99	4,057	6,826	132	164	80	151	40	139	10.7
1921	32	83	94	3,603	6,875	124	165	75	155	40	157	10.2
1920	32	92	97	6,778	9,130	211	202	104	242	43	170	8.4
1919	31	91	98	9,249	8,461	215	198	109	207	49	140	7.1
1914	32	86	97	3,518	4,120	101	102	99	101	46	103	4.7
1910	32	79	98	3,753	3,599	102	96	106	97	--	--	3.2

1/ Including Government payments. 2/ Prices received for farm commodities (Aug. 1909-July 1914 = 100). 3/ Prices paid for commodities used for living and production, including interest and taxes. 4/ Preliminary. 5/ March 1 data. 6/ 10 months average.

United States: Total Acreage, Production of Principal Crops, Eggs and Milk and Cattle and Hogs on Farms Jan. 1

Year	Total Acreage 52 Crops	Production of Specified Crops						Livestock on Farms Jan. 1		Production of Eggs and Milk	
		Corn	All Wheat	Cotton	All Hay	Oats	Apples	Potatoes	All Cattle	All Hogs	Eggs	Milk
	Mil.acres	Mil.bu.	Mil.bu.	Mil.bales	Mil.tons	Mil.bu.	Mil.bu.	Mil. bu.	Mil.head	Mil.head	Mill.	Mil. lbs.
1947	348	2,401	1,365	12	102	1,216	1/ 113	384	81	57	-	-
1946	345	3,250	1,153	9	101	1,498	1/ 119	484	82	61	55,613	119,730
1945	346	2,881	1,108	9	109	1,536	1/ 67	419	86	59	55,858	121,504
1944	353	3,088	1,060	12	103	1,149	1/ 121	383	85	84	58,530	117,992
1943	348	2,966	844	11	103	1,140	1/ 87	459	81	74	54,539	117,785
1942	339	3,069	969	13	108	1,343	1/ 127	369	76	61	48,597	118,884
1941	335	2,652	942	11	96	1,183	1/ 122	356	72	54	41,878	115,268
1940	332	2,457	815	13	96	1,246	1/ 111	377	68	61	39,695	109,502
1939	322	2,581	741	12	87	958	1/ 139	342	66	50	38,843	106,792
1938	338	2,549	920	12	91	1,089	125	356	65	45	37,356	105,807
1937	338	2,643	874	19	83	1,177	201	376	66	43	37,564	101,908
1936	314	1,506	630	12	70	793	117	324	68	43	34,534	102,410
1935	336	2,299	628	11	90	1,210	174	379	69	39	33,609	101,205
1934	295	1,449	526	10	60	544	128	406	74	59	34,429	101,621
1933	331	2,398	552	13	75	736	149	343	70	62	35,514	104,762
1932	362	2,930	756	13	84	1,255	147	375	66	59	36,298	103,810
1931	356	2,576	942	17	75	1,124	205	384	63	55	38,532	103,029
1930	360	2,080	887	14	75	1,275	157	344	61	56	39,067	100,158
1929	355	2,516	824	15	87	1,113	135	333	59	59	37,921	98,988
1928	351	2,666	914	14	84	1,313	178	427	57	62	38,659	95,843
1927	348	2,616	875	13	98	1,093	116	370	58	55	38,627	95,172
1926	349	2,547	832	18	76	1,153	230	322	61	52	37,248	93,325
1925	350	2,798	669	16	79	1,405	152	296	63	56	34,969	90,699
1924	345	2,223	842	14	91	1,416	160	384	66	67	34,592	89,240
1923	345	2,875	759	10	89	1,227	181	366	68	69	35,000	
1922	342	2,707	847	10	95	1,148	189	415	69	60	33,000	
1921	345	2,928	819	8	85	1,045	96	325	69	59	30,800	Not
1920	347	3,071	843	13	92	1,444	207	369	70	60	29,700	
1919	351	2,679	952	11	92	1,107	141	297	72	64	30,500	available
1914	315	2,524	897	16	83	1,066	233	368	59	53	27,900	
1909	300	2,611	684	10	87	1,014	145	390	61	53	25,300	

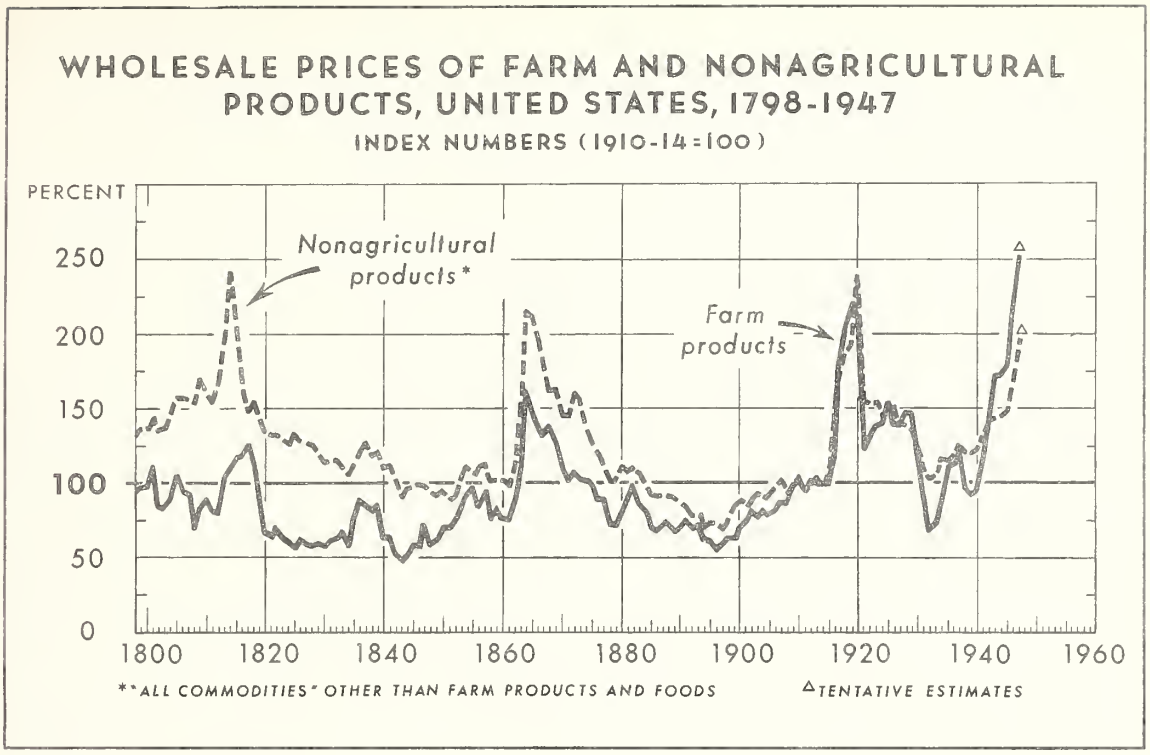
1/ From 1939 through 1947 the estimates are production of apples in commercial apple areas.



U. S. DEPARTMENT OF AGRICULTURE NEG. 39935-X BUREAU OF AGRICULTURAL ECONOMICS

During both war periods, prices received by farmers went up faster and higher than did prices paid. In early 1947, both prices received and paid were at new highs. The ratio between the two reached a peak of 132 in October 1946, and has stayed well over 100 even though, during recent months, the prices paid index has tended to rise relative to prices received.

Figure 1



We are now in the fourth great inflationary period of the 150-year record of wholesale prices. War and heavy Government spending have accompanied each of these peaks. During most of World War II, inflationary pressures were held in check by various control measures. In recent months, however, most prices have risen to new record highs.

Wholesale prices of farm and nonagricultural products, United States, 1798 - 1947
(Index numbers 1910-14 = 100)

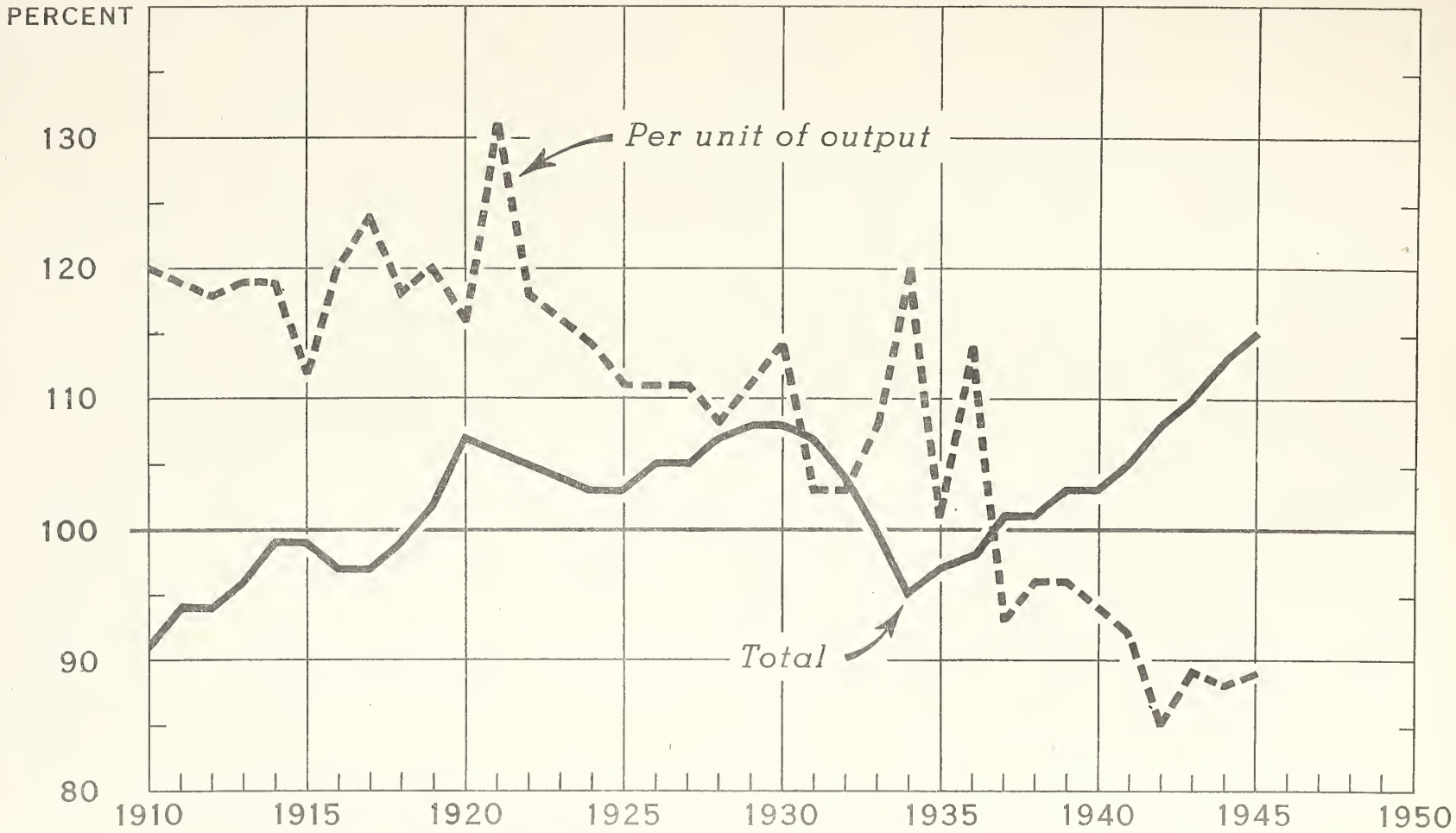
Year	Farm products	Nonfarm products	Year	Farm products	Nonfarm products	Year	Farm products	Nonfarm products	Year	Farm products	Nonfarm products	Year	Farm products	Nonfarm products
1798	93	132	1829	59	121	1860	77	101	1891	76	84	1922	132	152
1799	98	137	1830	58	114	1861	75	98	1892	69	78	1923	138	154
1800	99	137	1831	61	116	1862	86	113	1893	72	78	1924	140	148
1801	113	144	1832	63	116	1863	113	150	1894	63	71	1925	154	152
1802	84	136	1833	69	111	1864	162	214	1895	62	74	1926	140	148
1803	83	138	1834	64	107	1865	148	210	1896	56	74	1927	139	139
1804	89	148	1835	75	114	1866	140	197	1897	60	70	1928	148	138
1805	106	157	1836	89	123	1867	133	176	1898	63	74	1929	147	136
1806	95	157	1837	84	127	1868	138	163	1899	64	85	1930	124	126
1807	92	155	1838	82	119	1869	128	163	1900	71	89	1931	91	111
1808	71	154	1839	86	122	1870	112	146	1901	74	86	1932	68	104
1809	83	171	1840	65	112	1871	102	146	1902	82	90	1933	72	106
1810	90	161	1841	64	113	1872	108	160	1903	78	94	1934	92	116
1811	82	154	1842	53	103	1873	103	156	1904	82	91	1935	111	115
1812	81	166	1843	48	92	1874	102	139	1905	79	94	1936	113	118
1813	104	204	1844	52	97	1875	99	127	1906	80	98	1937	121	126
1814	112	241	1845	58	99	1876	89	120	1907	87	102	1938	96	121
1815	117	203	1846	58	99	1877	89	111	1908	87	95	1939	92	120
1816	119	163	1847	72	98	1878	72	100	1909	98	100	1940	95	123
1817	126	150	1848	59	94	1879	72	100	1910	104	104	1941	116	132
1818	117	155	1849	62	92	1880	80	113	1911	94	95	1942	149	141
1819	87	146	1850	71	95	1881	89	109	1912	102	99	1943	172	144
1820	68	134	1851	71	90	1882	99	110	1913	100	100	1944	173	146
1821	64	132	1852	77	91	1883	87	107	1914	100	98	1945	180	148
1822	70	132	1853	83	105	1884	82	99	1915	100	101	1946	209	162
1823	64	130	1854	93	112	1885	72	92	1916	118	131	1947 1/	252	197
1824	61	126	1855	98	108	1886	68	91	1917	181	169			
1825	67	133	1856	84	112	1887	71	92	1918	208	185			
1826	62	128	1857	95	114	1888	75	92	1919	221	191			
1827	59	127	1858	76	101	1889	67	89	1920	211	239			
1828	58	125	1859	82	101	1890	71	86	1921	124	155			

Compiled as follows: 1798-1889, Warren and Pearson; 1890 - Bureau of Labor Statistics. 1/ Preliminary

Figure 2

PRODUCTION INPUTS: TOTAL AND PER UNIT OF FARM OUTPUT, UNITED STATES, 1910-45

INDEX NUMBERS (1935-39=100)



INPUTS ARE PHYSICAL QUANTITIES OF ALL FARM LABOR, LAND, MACHINERY, POWER, FERTILIZER, AND OTHER MATERIALS AND RESOURCES USED IN FARM PRODUCTION (WEIGHTED BY AVERAGE 1935-39 PRICES)

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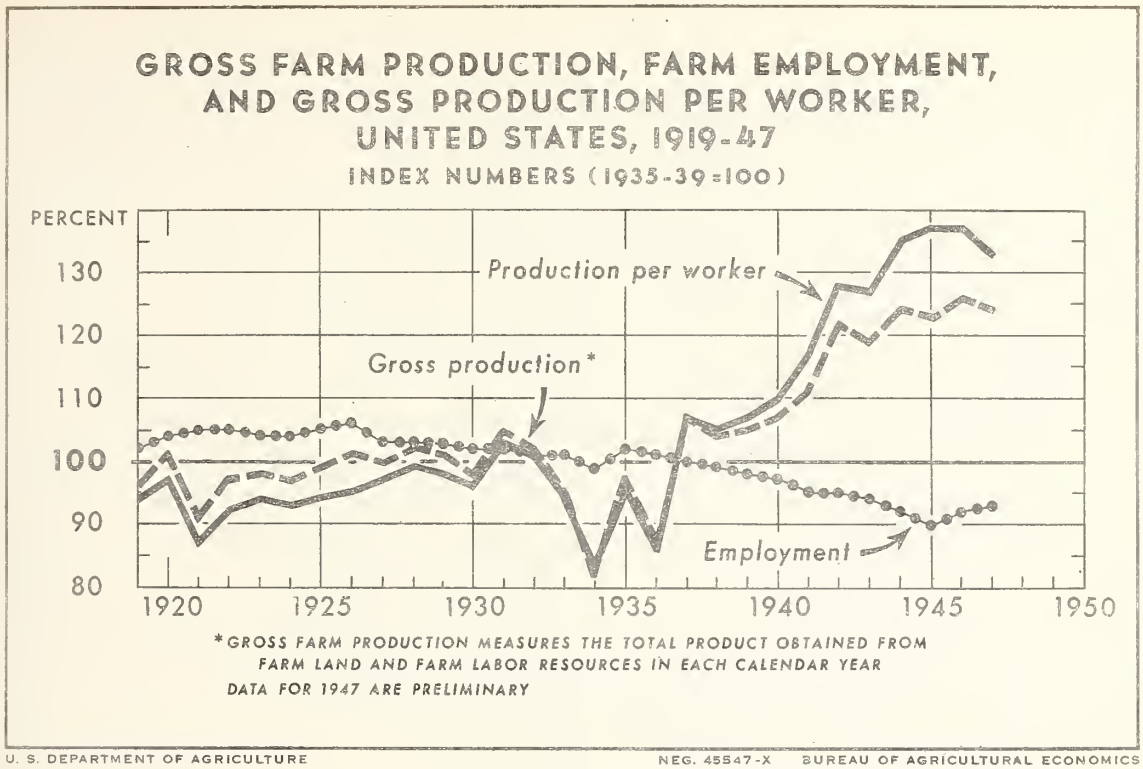
Figure 3



Farm employment has been going down, gross production up and production per farm worker has increased materially. The impact of these changes has been particularly noticeable since 1940. Along with mechanical aids, farmers are using more fertilizer, better animal husbandry, new plant varieties, better rotations, and other conservation practices.

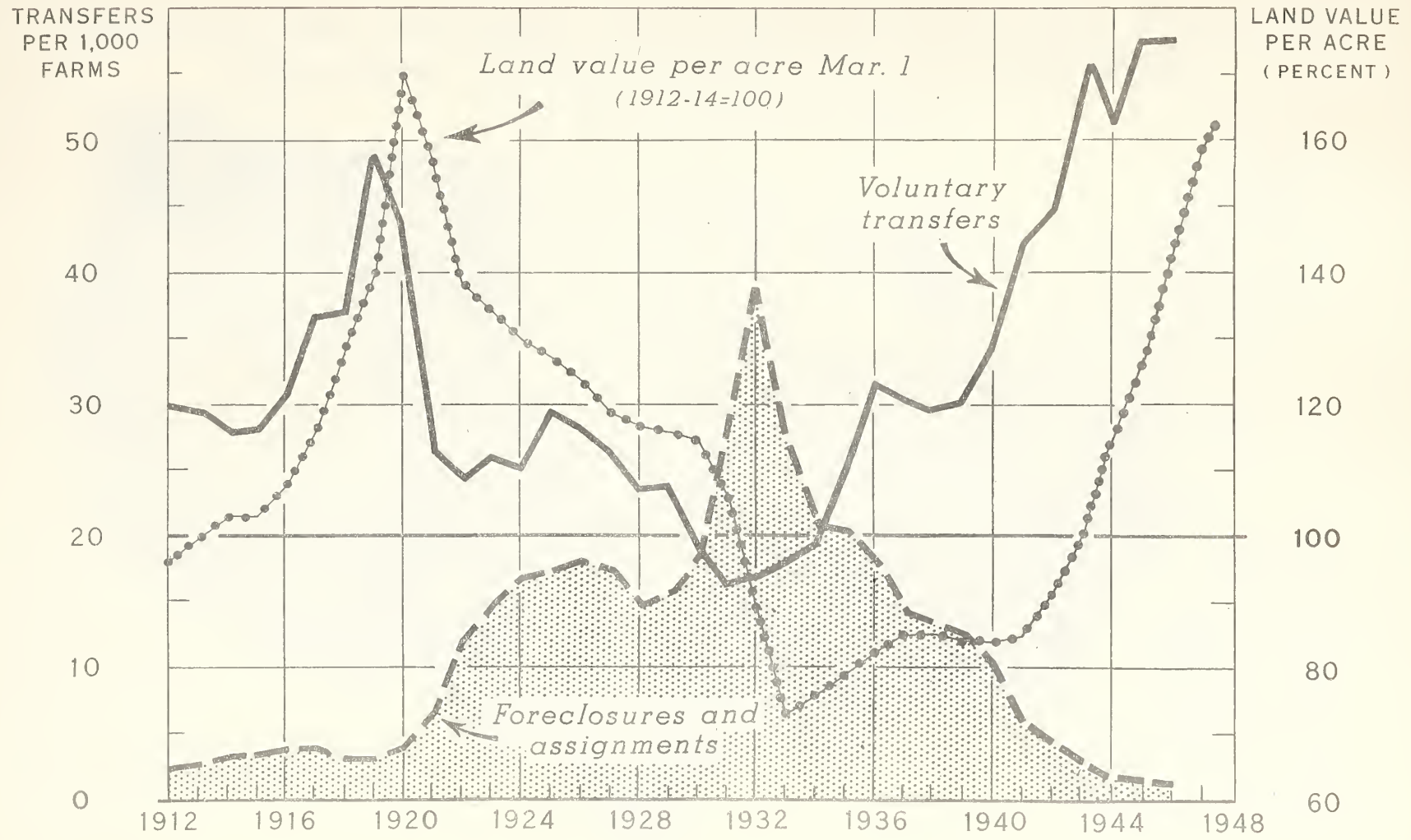
Gross farm production, farm employment, and gross production per worker, United States, 1919-47
Index numbers (1935-39 = 100)

Year	Gross production	Farm employment	Production per worker	Year	Gross production	Farm employment	Production per worker
1919	96	102	94	1935	97	102	95
				1936	87	101	86
				1937	107	100	107
1920	101	104	97	1938	104	99	105
1921	91	105	87	1939	105	98	107
1922	97	105	92				
1923	98	104	94				
1924	97	104	93	1940	107	97	110
				1941	111	95	117
				1942	122	95	128
1925	99	105	94	1943	119	94	127
1926	101	106	95	1944	124	92	135
1927	100	103	97				
1928	102	103	99				
1929	101	103	98				
				1945	123	90	137
				1946	126	92	137
1930	98	102	96	1947 1/	124	93	133
1931	105	102	103				
1932	102	101	101				
1933	95	101	94				
1934	82	99	83				

1/ Preliminary.

Figure 4

VOLUME OF FORECLOSURES AND ASSIGNMENTS, VOLUNTARY TRANSFERS, AND INDEX NUMBERS OF VALUE PER ACRE OF FARM REAL ESTATE, UNITED STATES, 1912-47



U. S. DEPARTMENT OF AGRICULTURE NEG. 42982 BUREAU OF AGRICULTURAL ECONOMICS

Figure 1

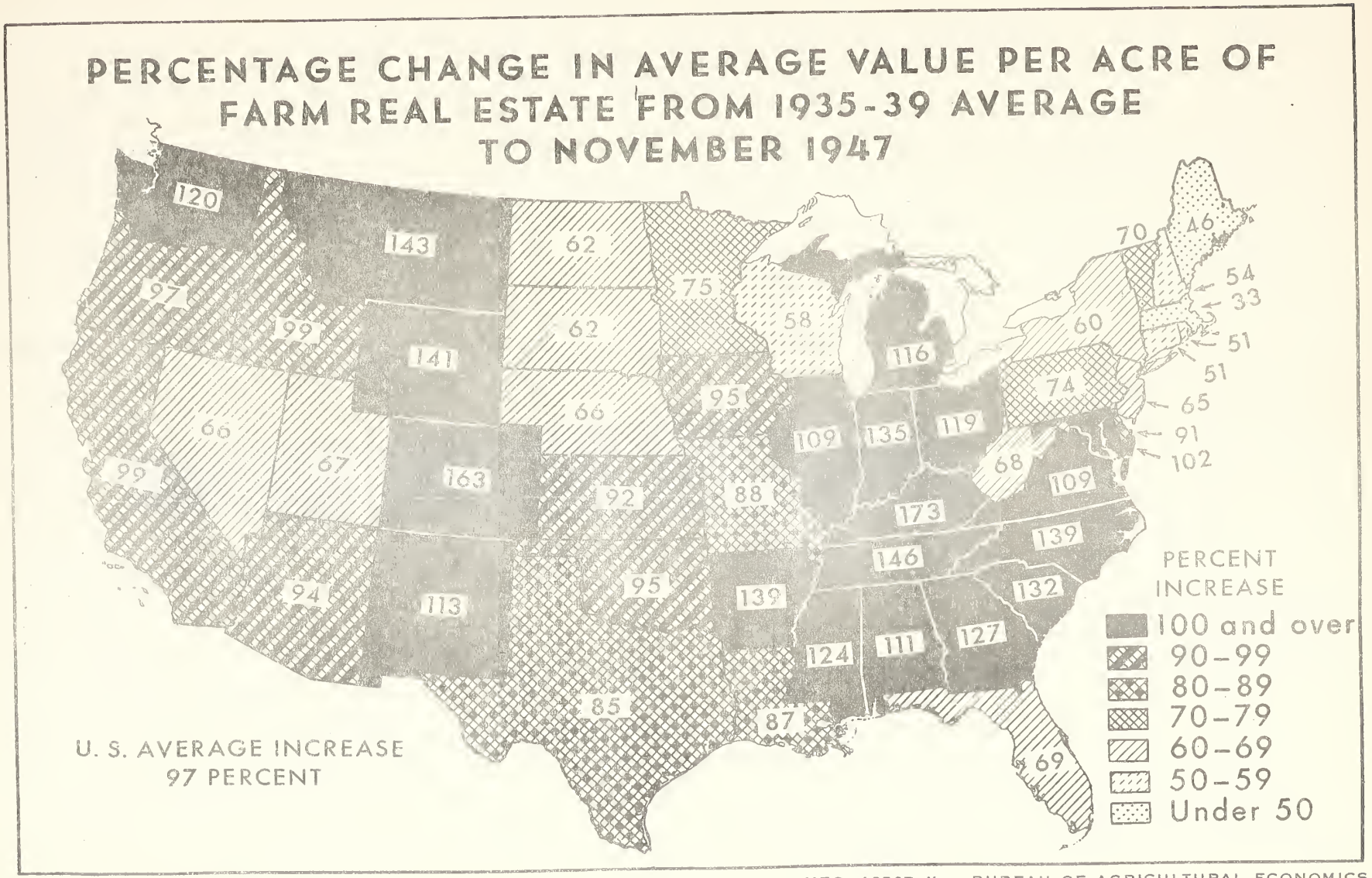
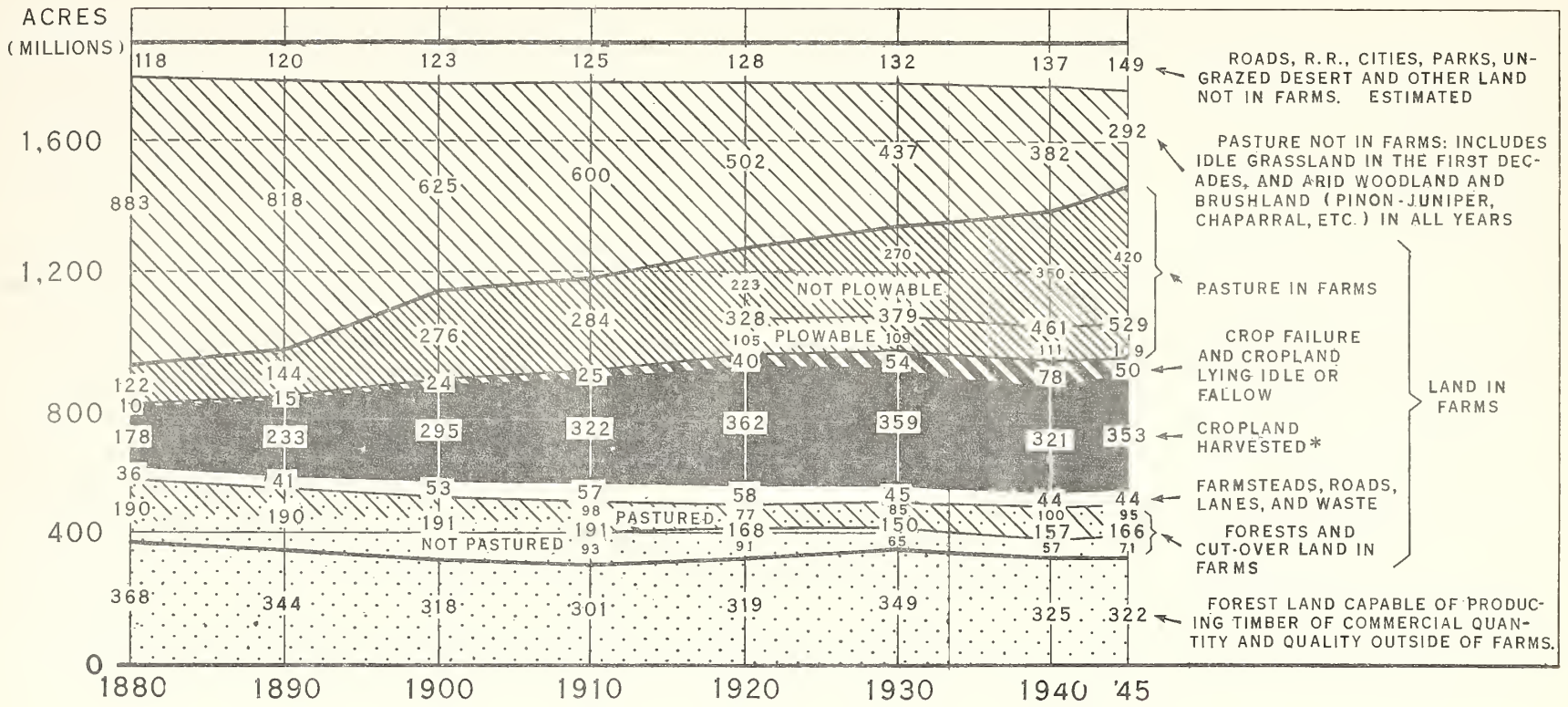

PERCENTAGE CHANGE IN AVERAGE VALUE PER ACRE OF FARM REAL ESTATE FROM 1935-39 AVERAGE TO NOVEMBER 1947
120
143
62
75
58
116
70
46
54
33
60
51
51
74
65
91
102
97
99
62
141
66
95
109
135
119
68
109
99
66
67
163
92
88
173
139
146
94
113
95
139
132
124
111
127
85
87
69
PERCENT INCREASE
100 and over
90–99
80–89
70–79
60–69
50–59
Under 50
U. S. AVERAGE INCREASE
97 PERCENT
U. S. DEPARTMENT OF AGRICULTURE
NEG. 46597-X BUREAU OF AGRICULTURAL ECONOMICS

Figure 6

THE TREND IN LAND UTILIZATION

United States, 1880-1945

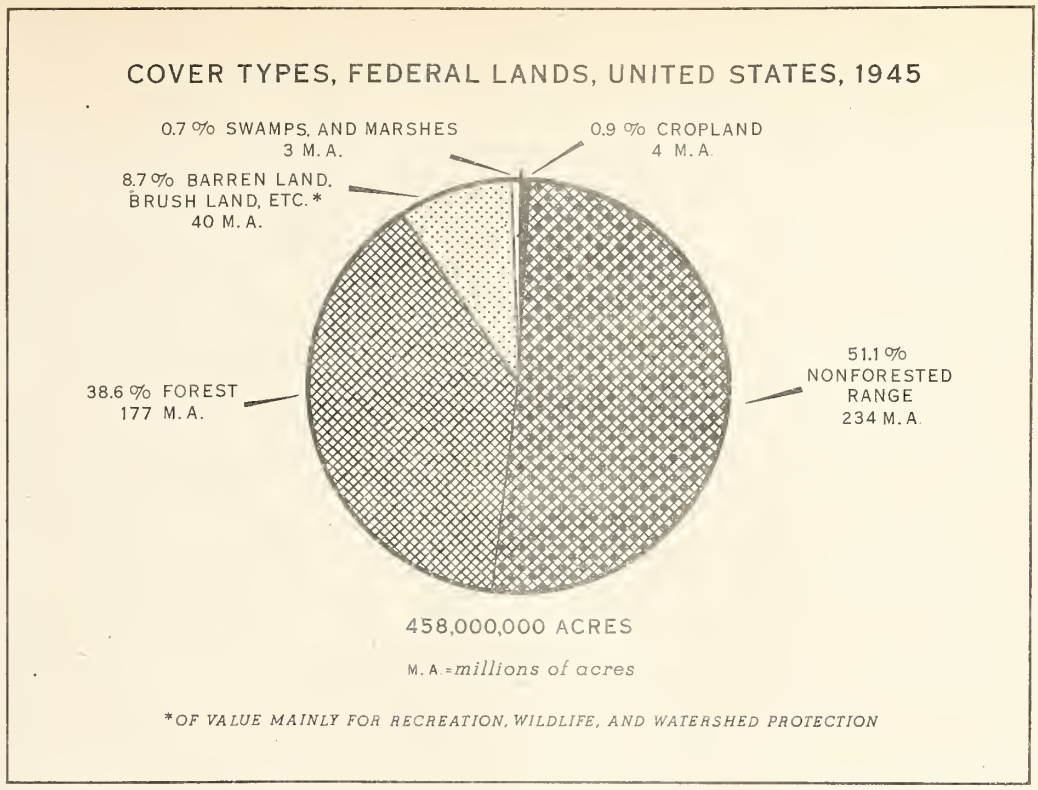


FIGURES PRIOR TO 1930 ARE MOSTLY ESTIMATES BASED ON THE CENSUS

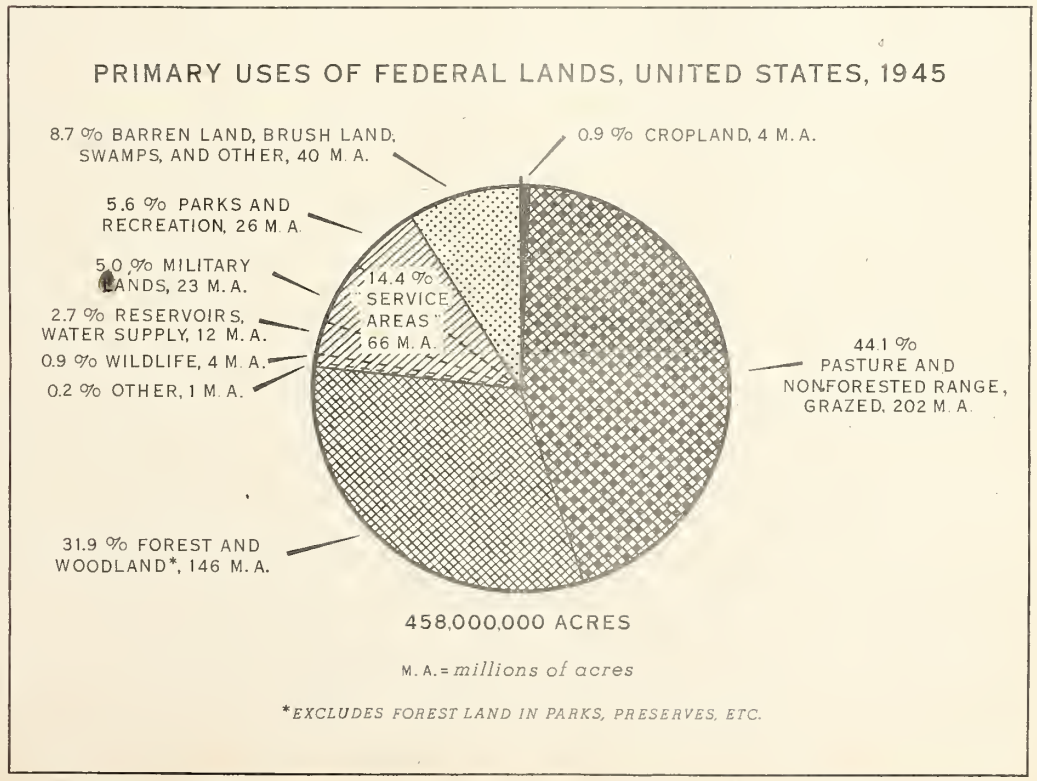
**CROPLAND ACREAGES ARE FOR THE YEAR PRECEDING THE DATE OF THE CENSUS*

U. S. DEPARTMENT OF AGRICULTURE NEG. 19123 BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 7

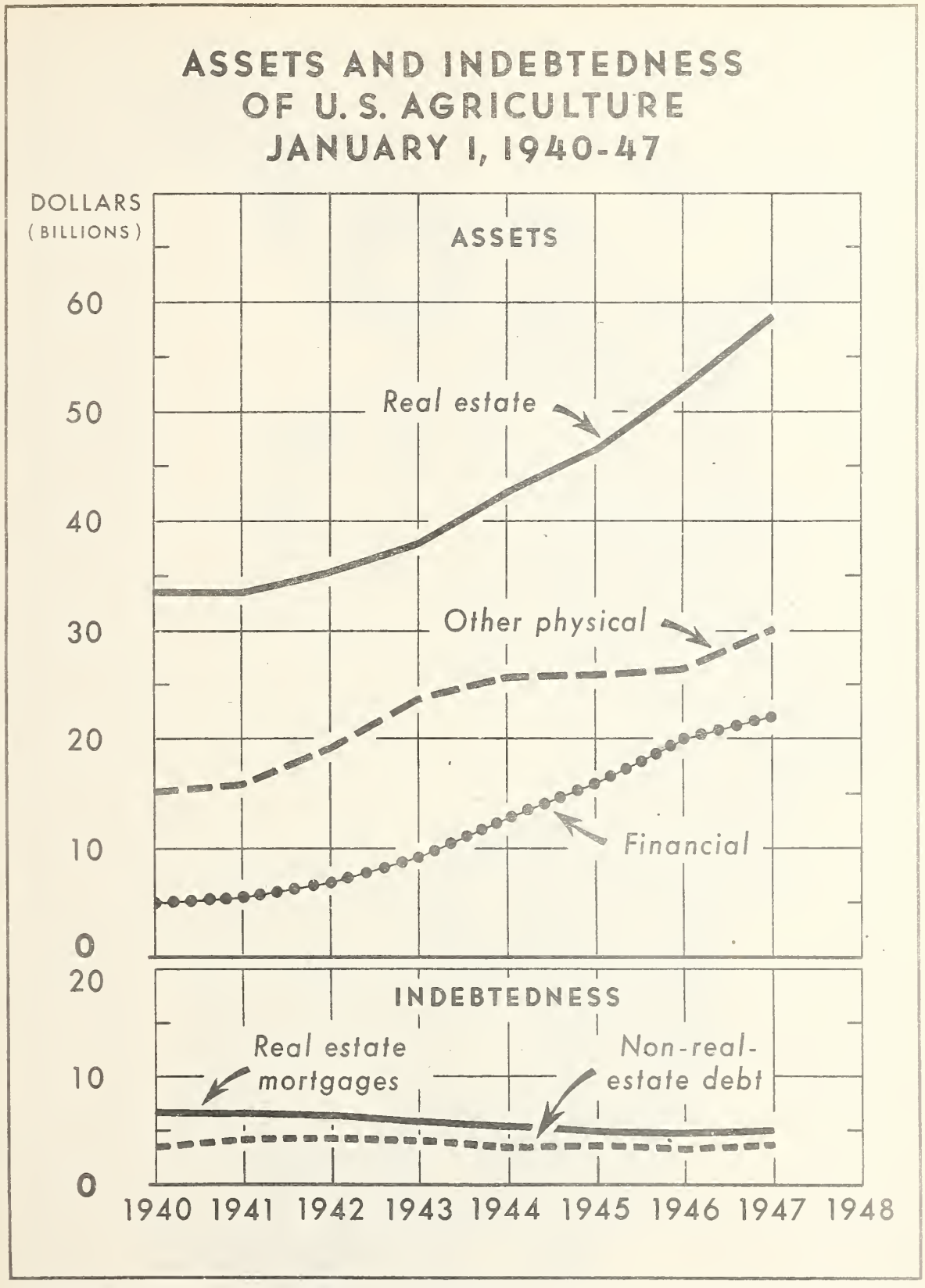


U. S. DEPARTMENT OF AGRICULTURE NEG. 46453 BUREAU OF AGRICULTURAL ECONOMICS



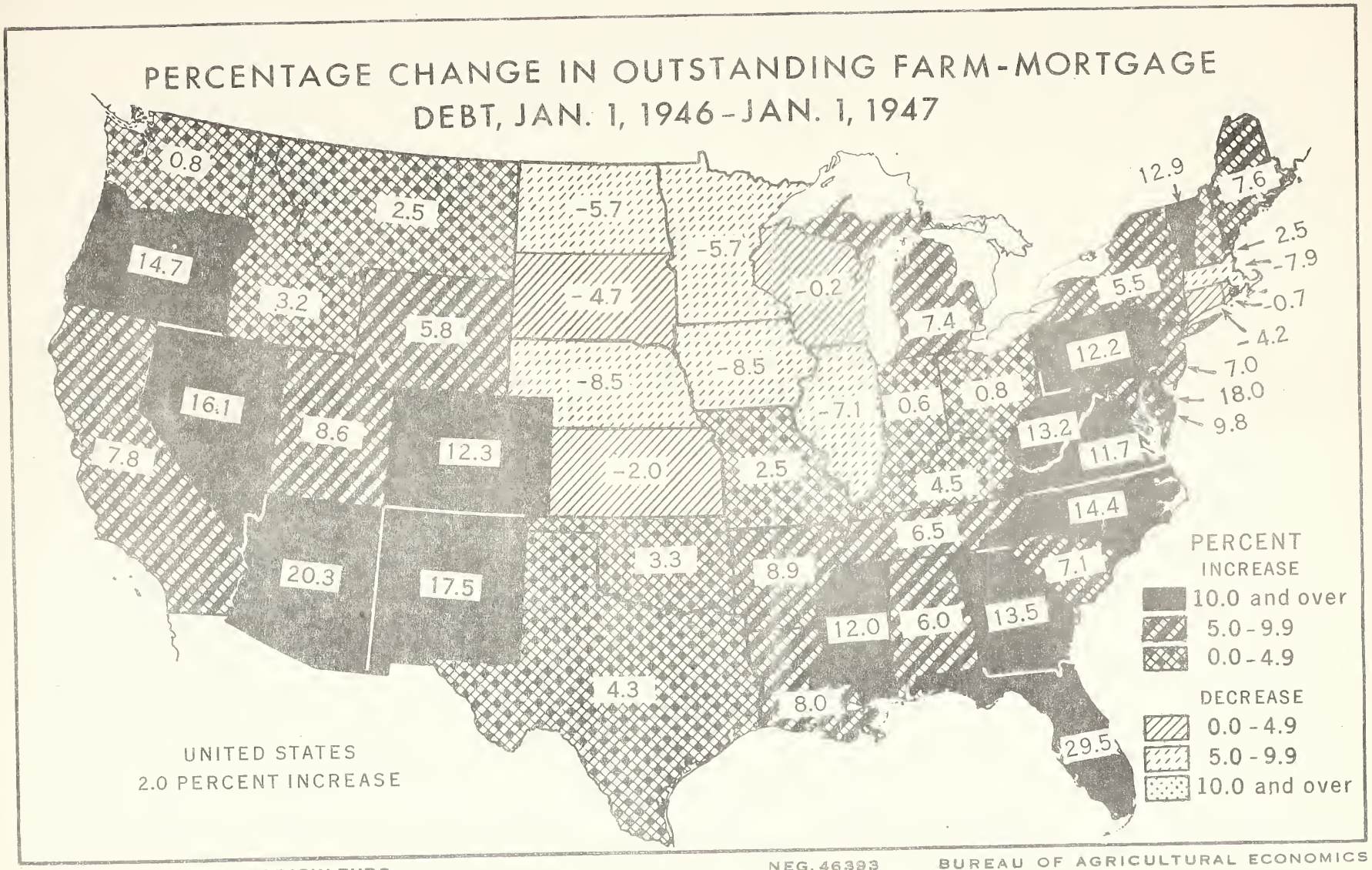
U. S. DEPARTMENT OF AGRICULTURE NEG. 46457 BUREAU OF AGRICULTURAL ECONOMICS

Figure 8



U. S. DEPARTMENT OF AGRICULTURE NEG. 46524-X BUREAU OF AGRICULTURAL ECONOMICS

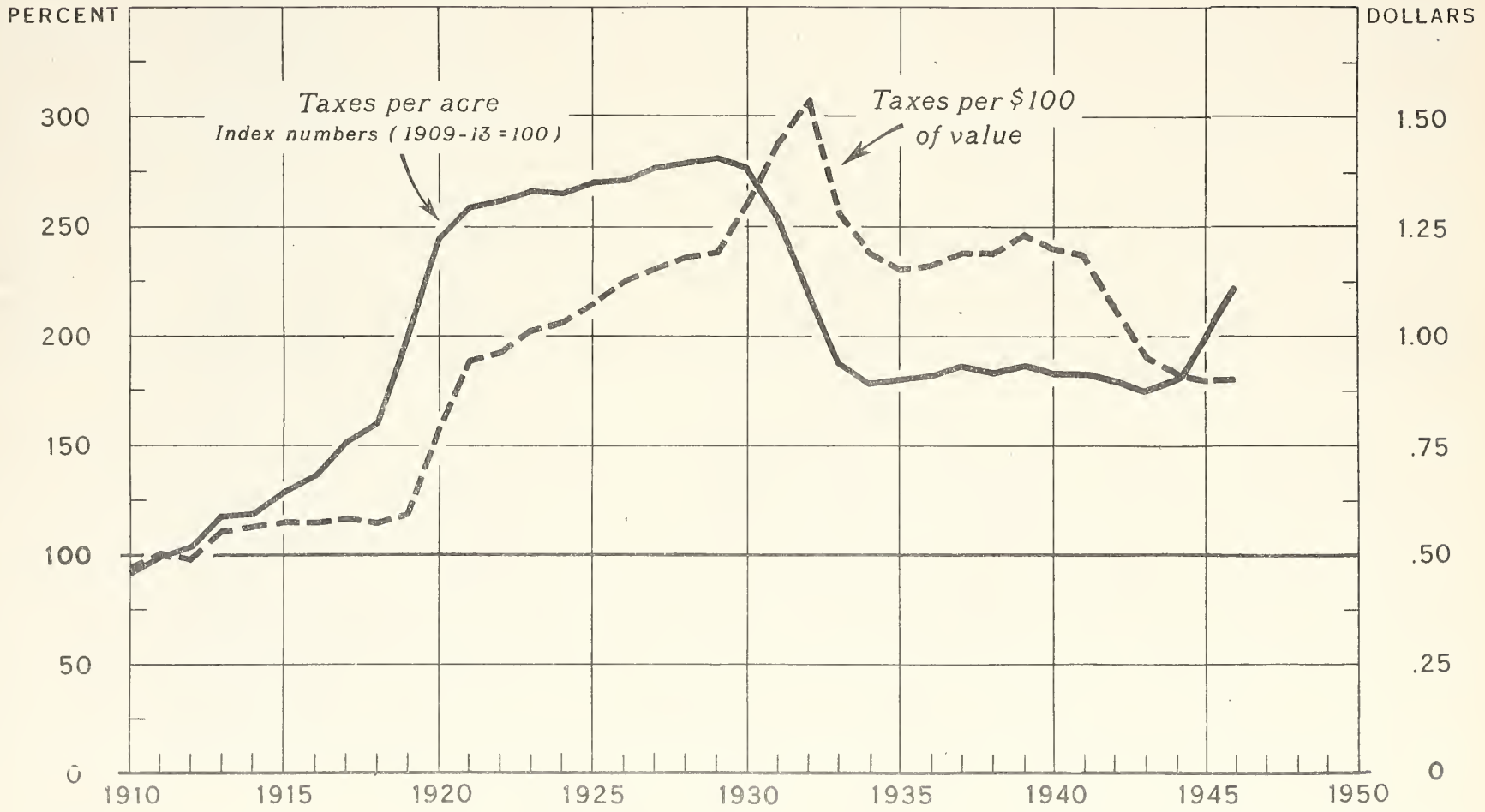
Figure 9



U. S. DEPARTMENT OF AGRICULTURE NEG. 46393 BUREAU OF AGRICULTURAL ECONOMICS

Figure 10

FARM REAL ESTATE TAXES PER ACRE AND PER $100 OF VALUE, UNITED STATES, 1910-46



U. S. DEPARTMENT OF AGRICULTURE

NEG. 39891 BUREAU OF AGRICULTURAL ECONOMICS

Figure 11

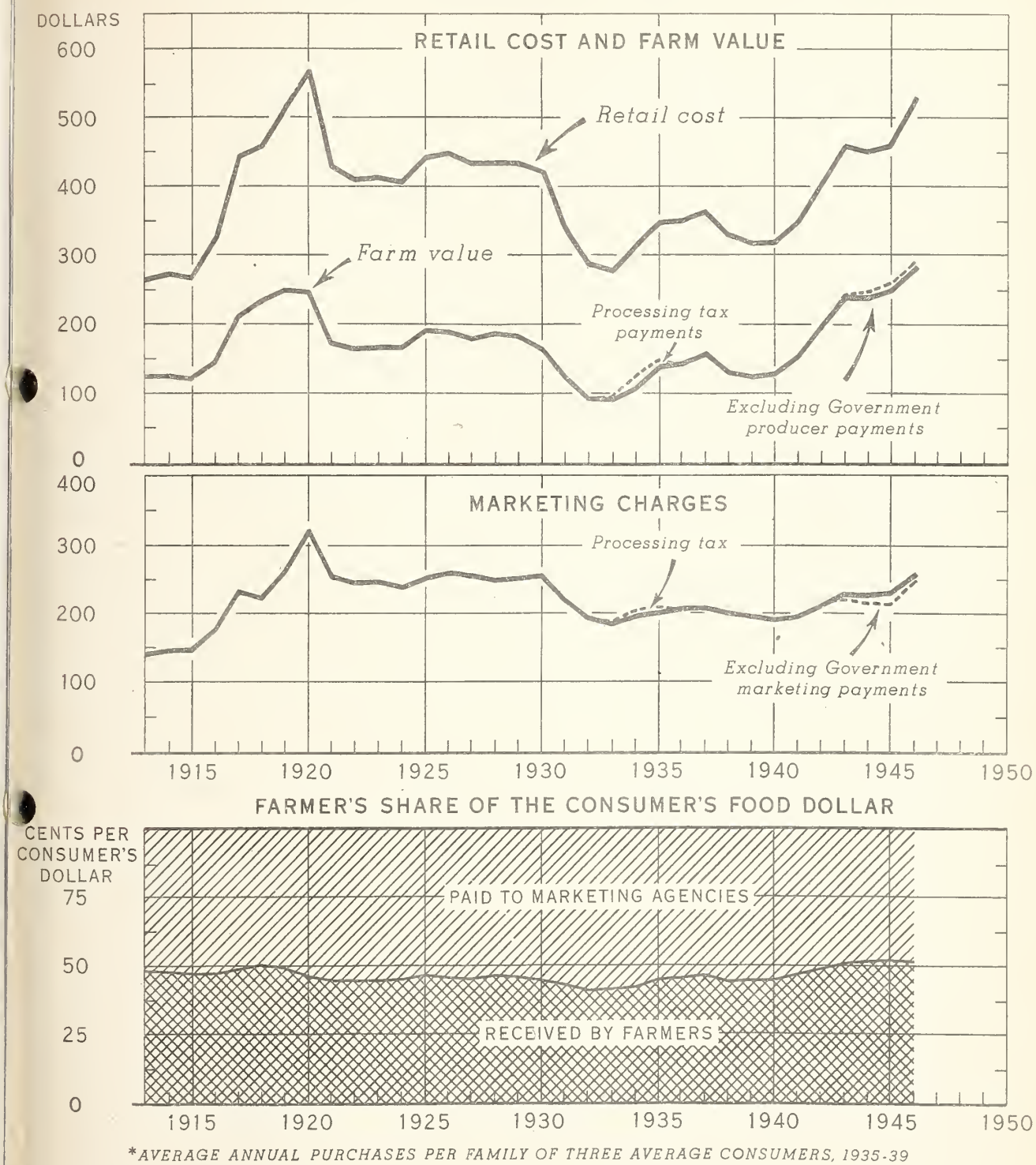
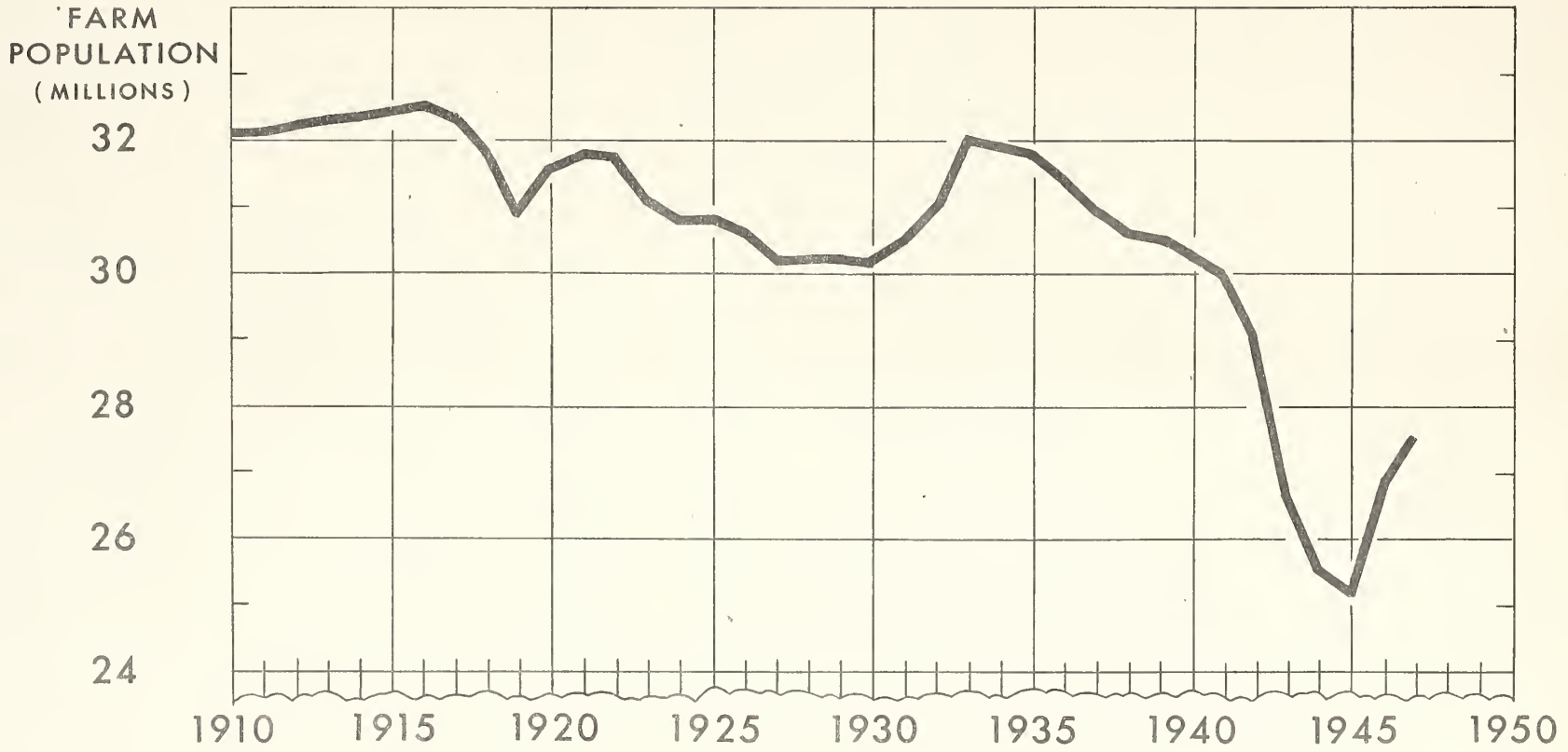


Figure 12

Retail prices of foods rose sharply following lapse and termination of price ntrols after June 1946. The increase in retail cost was divided between farmers and ddlemen with little change in the farmer's share of the consumer's food dollar.

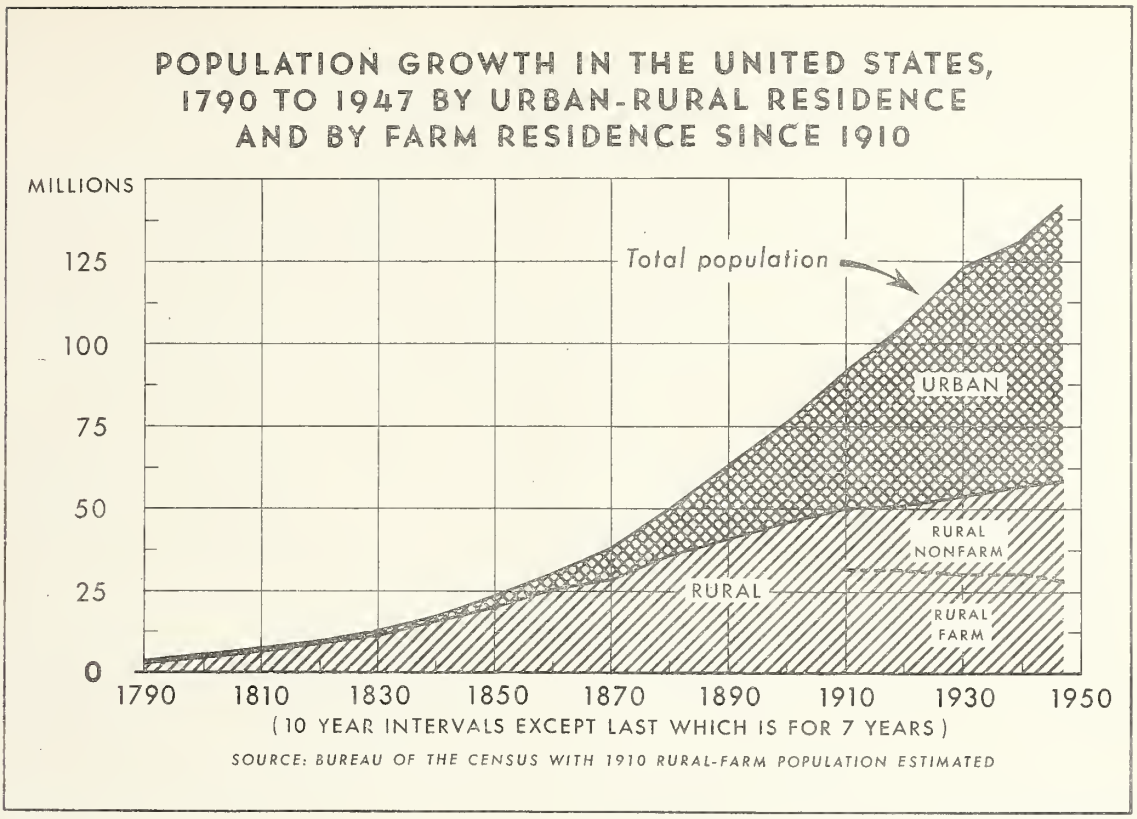
FARM POPULATION, UNITED STATES, 1910-47



NOTE: DURING THE PERIODS OF THE TWO WORLD WARS, MANY OF THE MEN WHO WOULD NORMALLY HAVE BEEN LIVING ON FARMS WERE IN THE ARMED FORCES AND ARE NOT INCLUDED IN THESE ESTIMATES OF FARM POPULATION

U. S. DEPARTMENT OF AGRICULTURE NEG. 43457-X BUREAU OF AGRICULTURAL ECONOMICS

Figure 13



U. S. DEPARTMENT OF AGRICULTURE NEG. 46281-X BUREAU OF AGRICULTURAL ECONOMICS

Total population increased more rapidly during the war than in the thirties. Urban population increased more than did the total population, as rural and farm populations actually decreased. Since 1910, the trend of farm population has declined in actual number and as a percentage of total population. This decline has been accompanied by increasing efficiency made possible by technological advances. A greater quantity of food and other agricultural products has been produced to meet the demand of larger total population, even though the number of people on farms now is much smaller than in 1910.

Population growth in the United States, urban and rural, 1790-1947

Year	Total	Urban	Rural	Rural-nonfarm	Rural-farm
	(Millions)	(Millions)	(Millions)	(Millions)	(Millions)
1790	3.9	.2	3.7		
1800	5.3	.3	5.0		
1810	7.2	.5	6.7		
1820	9.6	.7	8.9		
1830	12.9	1.1	11.8		
1840	17.1	1.9	15.2		
1850	23.2	3.5	19.7		
1860	31.4	6.2	25.2		
1870	38.6	9.9	28.7		
1880	50.1	14.1	36.0		
1890	62.9	22.1	40.8		
1900	76.0	30.2	45.8		
1910	92.0	42.0	50.0	18.1	31.9
1920	105.7	54.1	51.6	20.2	31.4
1930	122.8	69.0	53.8	23.7	30.1
1940	131.7	74.5	57.2	27.0	30.2
1947	143.0	84.4	58.6	31.0	27.6

Source: Bureau of the Census. All dates adjusted to 1940 definitions. 1910 rural-farm population derived from Census estimate of total farm population. 1947 figures based on estimates of civilian population with persons in armed forces distributed proportionately to January 1947 residence of veterans.

Figure 14

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Research and Marketing Act of 1946, Department of Agriculture, Bureau of Agricultural Economics:			
(Title I, sec. 10a): Utilization research	- -	30,000	- -
(Title I, sec. 10b): Research, other than utilization research	- -	245,000	- -
(Title II): Marketing research and service	- -	353,000	- -
Total, Research and Marketing Act	- -	628,000	- -
Special Research Fund, Department of Agriculture (Bureau of Agricultural Economics): For special researches on economic factors affecting the farm industry	64,786	55,300	49,300
Salaries and Expenses, Marketing Services Marketing Farm Products (Bureau of Agricultural Economics): Special economic and statistical research relating to production goals, special dairy statistics and nutrition programs	45,760	- -	- -
Working Funds, Agriculture, Bureau of Agricultural Economics, (General Account) Advanced from:			
Department of Agriculture:			
Conducting a statistical survey of factors affecting the control of Bang's Disease in cattle (Bureau of Animal Industry)	- -	30,000	- -
Conducting field work on a survey of 400 households in the State of Vermont for the purpose of evaluating the extension work in that State (Extension Service)	4,957	- -	- -

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Working Funds, Agriculture,			
Bureau of Agricultural Economics, (General Account)			
Advanced from:			
Department of Agriculture:			
Cont'd			
Furnishing cost-of-production data for various crops insured by the Federal Crop Insurance Corporation:			
(Federal Crop Insurance Corporation)	- -	3,000	- -
Analysis of the principles and methods for economic evaluations of proposed flood control programs			
(Forest Service)	7,941	59	- -
(Soil Conservation Service)	- -	8,000	- -
Preparing estimates by counties of the total acreage of potatoes harvested in the years 1943, 1944, and 1945 (Production and Marketing Administration)	14,478	- -	- -
Survey of stocks of beans and peas (Production and Marketing Administration)	- -	6,450	- -
Total, Department of Agriculture	27,376	47,509	- -
Interior Department: Study of the development of food products industries in the Columbia Basin	17,538	2,028	- -
Cooperative study of irrigation farming in the Missouri River Basin	9,633	- -	- -
Conducting a study of the long-range outlook for marketing apples raised in the States of Washington, Oregon, and Idaho	790	- -	- -
Total, Interior Department	27,961	2,028	- -
Bureau of the Census:			
Planning and developing new methods of procuring agricultural data	19,554	8,479	- -
Work on the Master Sample	1,001	- -	- -
Total, Bureau of the Census	20,555	8,479	- -

(Continued on next page)

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Working Funds, Agriculture, Bureau of Agricultural Economics, (General Account)			
Advanced from:			
Federal Reserve System:			
National survey of individual holdings of liquid assets	7,678	- -	- -
National Housing Agency:			
Participation in housing mission to the Philippines	147	- -	- -
Treasury Department:			
Studies of the effectiveness of the various methods of selling war bonds and factors affecting the sale of bonds and related information	36,194	- -	- -
Total, Working Funds	119,911	58,016	- -
Miscellaneous Contributed Funds, Department of Agriculture (Bureau of Agricultural Economics)			
Deposited by:			
National Bureau of Economic Research: Cooperative study of agricultural financing	7,615	2,297	- -
Iowa State College:			
Cooperative work with Iowa State College	5,059	- -	- -
Total, Miscellaneous Contributed Funds	12,674	2,297	- -
Cooperation with American Republics (Transfer to Agriculture from State Department):			
Participation in the program of cooperation with the American Republics a/	39,454	50,223	65,279
Penalty Mail Costs, Department of Agriculture (Allotment to Bureau of Agricultural Economics): For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress	241,681	320,000	344,000

(Continued on next page)

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
United Nations Relief and Rehabilitation Administration:			
Estimating stocks of seeds, beans, peas, and rice as basis for allocations under United Nations Relief and Rehabilitation Administration	9,762	- -	- -
TOTAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	534,028	1,113,836	458,579

a/ Detailed schedule for this item appears in the State Department chapter of the Budget.

PASSENGER MOTOR VEHICLES

It is anticipated that the Bureau will need to replace 9 cars at a net cost of $1,000 each, or a total of $9,000.

The 9 cars to be replaced constitute 21 percent of the total number of cars now owned and operated under the above appropriations. Based on mileage now in effect, the mileage on each car will be more than 80,000 miles at the time it is turned in.

PENALTY MAIL ESTIMATE
Sec. 2, Public Law 364, 78th Congress
(Allotment to Bureau of Agricultural Economics)

	1947	1948	1949	Increase (+) or Decrease (-), 1949 over 1948
Category 1	$113,610	$138,000	$148,350	+$10,350
Category 2	128,071	182,000	195,650	+13,650
Total	241,681	320,000	344,000	(1) +24,000

(1) The increase of $24,000 for 1949 is for the purpose of providing sufficient funds to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20.00 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

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Category 1 consists of bulletins and reports released by the Bureau covering all types of crop and livestock production data, agriculture situation reports, information on farm finance, land values, costs, prices and income in relation to farming, farm management data and other statistical and economic information on agricultural production, distribution, and related subjects.

Category 2 consists almost entirely of schedules mailed out for the purpose of obtaining data relating to agriculture, to be used in preparing crop and livestock estimates, acreage, yield, grades, staples of cotton, stocks and value of farm crops, and numbers, grades and value of livestock and livestock products and related data. Also included is the regular operating and administrative correspondence necessary to the work of the Bureau.

OFFICE OF FOREIGN AGRICULTURAL RELATIONS

(a) Salaries and Expenses

Appropriation Act, 1948	$503,000
Budget Estimate, 1949	514,700
Increase, 1949 (for within-grade salary advancements)	+11,700

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Foreign Agricultural Relations	$702,247	$503,000	$514,700	+$11,700(1)
Unobligated balance	9,753	--	--	--
Total available	712,000	503,000	514,700	+11,700
Transferred from "Exportation and domestic consumption of Agricultural commodities Department of Agriculture", (for Pay Act costs)	-62,000	--	--	
Total appropriation or estimate	650,000	503,000	514,700	

INCREASE

(1) Increase of $11,700 to cover the cost of within-grade salary advancements in fiscal year 1949.

The Mead-Ramspeck Act, as amended by the Federal Employees Pay Act of 1945, provides that employees compensated on a per annum basis and occupying permanent positions, and who have not attained the maximum rate of compensation for the grade in which their positions were allocated, should receive an advance in compensation to the next higher rate within the grade after each 12 months of service for employees in grades below CAF-11 (and comparable grades in other services), and after 18 months of service for employees in grades of CAF-11 and above (and comparable grades in other services).

The Office of Foreign Agricultural Relations is a small staff agency of the Secretary's Office and over 93% of its expenditures are for personal services. Since less than 7% of the appropriation requested is to be used for expenses other than salaries, it would not be possible to absorb the cost of within-grade promotions out of these items. This would mean that the entire cost of within-grade promotions would have to be absorbed from funds available for personal services. The amount requested to cover the additional costs is $11,700 which is approximately 3% of the total payroll. This figure was determined only after careful consideration of the costs of within-grade salary advancements that can be

absorbed through (1) savings due to delay in filling vacancies and (2) savings due to filling vacancies at the minimum of the grade as a result of grade separations and promotions. Further absorption of the within-grade salary costs would necessitate serious curtailment of services being performed in the field of foreign agriculture for the Department and other governmental agencies at a time when there is an increasing need for these services due to the critical world food situation. The need for these additional funds is especially urgent in view of the 30% reduction in funds available to the Office of Foreign Agricultural Relations in 1948.

ITEMIZATION OF APPROPRIATION REQUEST

Appropriation: Salaries and Expenses

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$503,000	$514,700	+$11,700
Total obligations	503,000	514,700	+ 11,700
Obligations by Objects			
Standard Classification			
01 Personal Services	$468,820	$480,520	+$11,700
02 Travel	6,000	6,000	- -
03 Transportation of things	3,000	3,000	- -
04 Communication services	9,000	9,000	- -
07 Other contractual services	12,000	12,000	- -
08 Supplies and materials	3,180	3,180	- -
09 Equipment	1,000	1,000	- -
Grand total obligations	503,000	514,700	+ 11,700

WORK UNDER THIS APPROPRIATION

The primary function of the Office of Foreign Agricultural Relations is to investigate and report upon foreign agricultural developments of interest and significance to the United States and particularly with respect to trends and potentialities in the fields of foreign competition with and foreign demand for American farm products. The bulk of these reports fall within three broad categories: (1) reports on foreign production and international trade in agricultural products, (2) reports on the world food situation, and (3) reports made in response to special requests.

The following are examples of some of the important reports prepared and issued by the Office in these three categories during the calendar year 1947:

1. Reports on foreign production and international trade in agricultural products

   (a) The Office has worked out a program of world crop reports on all crops and livestock items of major interest to the farmers of the United States. This involves the establishment of a schedule of dates on which the reports will be received from U. S. Agricultural Attaches and Consuls throughout the world, and a definite schedule of dates on which the consolidated world summaries will be published. The objective is to supply American farmers with as up-to-date a picture of world developments as possible.

   For example, in the case of wheat, a report on September 15 provides a preliminary appraisal of production throughout the world. This is followed by a second estimate on November 17 to include Southern Hemisphere crop prospects. A round-up of information on this commodity follows on March 10 when the Southern Hemisphere prospects have become more certain.

   In addition to these regularly scheduled reports, summaries of similar nature are prepared from time to time for additional commodities; a world summary of horse and mule population, a Mediterranean Basin fruits and nuts report, and a report on world poultry numbers, and so on.

   (b) A monthly report on U. S. Foreign Trade in Agricultural Commodities is issued for approximately 175 export commodities and 160 import commodities. In addition, information is collected on the foreign trade of other countries in agricultural commodities of importance to U. S. producers, exporters and importers. These are summarized in a series of reports on International Trade by commodities. The October 1947 report on World Grain Exports for 1946-47 was an example. Reports were also issued in 1947 on international trade in cotton and tobacco.

2. Reports on the world food situation

During the war, the Office prepared comprehensive annual reports and interim supplementary statements on the world food situation, covering production, consumption and requirements of all countries for all important food commodities. As a result of the critical world food situation the demand for this type of information has continued.

The most recent comprehensive annual report, "World Food Situation, 1946-47," was issued on March 3, 1947, and has been supplemented by interim reports. A similar comprehensive report for the consumption year 1947-48 will be issued in January 1948.

3. Reports made in response to special requests

(a) "Food and Agricultural Data for Selected European Countries", August 1947, prepared in response to a request from the Chairman of the Agricultural Sub-committee of the House Committee on Foreign Aid.

(b) "Food and Agricultural Data for Selected Far East Countries", November 1947, prepared in response to a request from the Chairman of the Agricultural Sub-committee of the House Committee on Foreign Aid.

(c) A report on "United States Agriculture and International Trade", August 1947, prepared in response to a request by the Committee on Agriculture and Forestry of the Senate and the Committee on Agriculture of the House of Representatives of the Congress of the United States. This report of 470 typewritten pages contains an analysis of the principal factors affecting present and prospective foreign markets for U. S. agricultural products.

(d) A series of reports prepared at the request of the Chairman of the House Committee on Foreign Aid summarizing production, imports, exports, and apparent consumption of wheat, rye, corn, oats, rice, potatoes, sugar, tobacco, oil cake, cotton, wool, cheese, eggs, dried and canned milk, meats, fruits, animal and vegetable oils in 16 European countries and their customary sources of import supplies.

Statement of Obligations under Supplemental Funds

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Research and Marketing Act of 1946, Department of Agriculture, (Office of Foreign Agricultural Relations):			
Development of foreign outlets for United States agricultural products in plentiful supply and study of foreign competition.....	- -	$ 75,000	a/
Exportation and Domestic Consumption of Agricultural Commodities, Department of Agriculture, Office of Foreign Agricultural Relations:			
For obtaining information on foreign market developments and other data related to the international aspects of the work under Section 32 of the Act of August 24, 1935	$ 54,157	20,000	$ 20,000
Cooperation with the American Republics (Transfer to Agriculture) Office of Foreign Agricultural Relations:			
For promoting in Latin America, through the establishment of cooperative agricultural research and extension centers, the production of complementary or non-competitive agricultural products, major attention being devoted to the problems involved in producing or expanding the production of cinchona (a source of quinine), other drug plants, insecticides such as pyrethrum and rotenone, tropical fibers, cacao, and vegetable oils..	$579,311	$670,000	$678,000

(continued on next page)

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
For training in agricultural research of trainees from other American Republics	14,910	36,947	34,249
General Administration	28,000	48,449	32,000
Total	$622,221	$755,396	$744,249
Penalty Mail Costs, Department of Agriculture (Allotment to Office of Foreign Agricultural Relations):			
For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress	1,745	2,000	2,150
Assistance to Greece and Turkey; Executive Office of the President (Transfer to Agriculture) Office of Foreign Agricultural Relations:			
To provide for certain program expenses in support of the agricultural rehabilitation program of the American Mission for Aid to Greece	- -	14,650	- -
TOTAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	678,123	867,046	766,399

a/ Allotments under this appropriation for the fiscal year 1949 have not been determined.

(b) International Production Control Committees

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. U. S. Share of direct contributions for expenses of the International Production Control Committees	$ 9,845	$12,500	--	-$12,500
2. Professional and clerical services	2,347	--	--	--
Unobligated balance	308	--	--	--
Total available	12,500	12,500	--	-12,500
Allotted from:				
"Salaries and expenses, Agricultural Adjustment Administration"	-8,500	-8,500	--	
"Administration of Sugar Act, Department of Agriculture"	-4,000	-4,000	--	
Total appropriation or estimate	--	--	--	

DECREASE

No funds are requested by the Department of Agriculture for the cost of United States membership in the International Wheat Advisory Committee or like events or bodies concerned with the reduction of agricultural surpluses. Funds required for such payments in 1949 are included in the estimates for the Department of State.

CHANGE IN LANGUAGE

The estimates include proposed deletion of the entire language shown in brackets.

[Not to exceed $12,500 may be expended from the appropriations "Salaries and expenses, Agricultural Adjustment Administration" and "Sugar Act" for the share of the United States as a member of the International Wheat Advisory Committee, the International Sugar Council, or like events or bodies concerned with the reduction of agricultural surpluses or with other objectives of said appropriations, together with traveling and other expenses ralating thereto.]

Retention of this language is no longer necessary as provision for this item will be made in the 1949 estimates for the Department of State.

ITEMIZATION OF APPROPRIATION REQUEST

Appropriation: International Production Control Committees, Office of Foreign Agricultural Relations

Funds Available for Obligation

Item	Estimate, 1948	Estimate, 1949	Increase(+) or decrease(-)
Appropriation or estimate	$12,500	- -	- $12,500
Total obligations	12,500	- -	- 12,500
Obligations by Objects			
Standard Classification			
11 Grants, subsidies and contributions	$12,500	- -	- $12,500
Grand total obligations	12,500	- -	- 12,500

WORK UNDER THIS APPROPRIATION

During 1948 memberships have been maintained in the International Wheat Council, International Sugar Council, and the International Cotton Advisory Committee.

At the International Sugar Council meeting in July the Council was extended until August 31, 1948. This action has been ratified by eighteen member countries. The work of the Council during the year has concerned itself with the study of necessary adjustments in the international marketing of sugar.

The organization of the International Cotton Advisory Committee was completed in July, 1947 with twenty-eight countries carried on the roll of the organization. The secretariat has been established and has as a major project the development of programs to assist the member Governments in improving cotton statistics at the source. Considerable progress was made on this project immediately following the meeting of the World Statistical Congress in Washington, D. C. in September, 1947. The executive committee meets once a month and reviews the world cotton situation using material prepared by the secretariat.

PENALTY MAIL ESTIMATE

Sec. 2, Public Law 364, 78th Congress
(Allotment to the Office of Foreign Agricultural Relations)

	1947	1948	1949	Increase (+) or decrease (-) 1949 over 1948
Category 1	$1,495	$1,750	$1,880	+ 130
Category 2	250	250	270	+ 20
Total	$1,745	$2,000	$2,150	+ 150 (1)

(1) The increase of $150 for 1949 is for the purpose of providing sufficient funds with which to meet increased costs of the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20 per thousand pieces of mail, an increase of $1.40 per thousand over the 1948 rate applicable to 1948 mailings.

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Category 1 consists of publications issued for disseminating information to employees of the Department in field offices, other Government agencies outside Washington, D. C., and the general public relative to agriculture in foreign countries. These publications consist of Foreign Crops and Markets, Foreign Agriculture, and special releases which are issued by this office.

Category 2 consists of correspondence with other government agencies, state organizations, and the public in reply to requests for information on foreign agriculture; and regular operating and administrative correspondence necessary to carry out the work of the Office.

EXTENSION SERVICE

Summary of Appropriations, 1948 and Estimates, 1949

Item	Total estimated available, 1948	Budget estimates, 1949	Increase(+) or Decrease(-)
Payments to States:			
Capper-Ketchem Act	$1,480,000	$1,480,000	- -
Bankhead-Jones Act, Title II:			
Section 21	12,000,000	12,000,000	- -
Section 23	8,500,000	8,500,000	- -
Additional extension work	555,000	555,000	- -
Alaska	23,950	23,950	- -
Puerto Rico	274,000	408,000	+$134,000
Cooperative agricultural extension work (permanent)	4,704,710	4,704,710	- -
Total, payments to States	27,537,660	27,671,660	+ 134,000
Salaries and expenses:			
Administration and coordination of extension work	827,200	827,200	- -
Total	28,364,860	28,498,860	+ 134,000
Deduct permanent appropriation:			
Cooperative agricultural extension work	4,704,710	4,704,710	- -
Total, direct annual appropriations	23,660,150	23,794,150	+ 134,000

(a) Payments to States, Hawaii, Alaska and Puerto Rico for Cooperative Agricultural Extension Work

Appropriation Act, 1948	$22,832,950
Budget estimate, 1949	22,966,950
Increase, 1949 (authorized by the Act of August 28,1937, to help meet urgent food production, health, nutrition, and related problems in Puerto Rico)	+ 134,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Capper-Ketcham Act (Act of May 22,1928)	$1,480,000	$1,480,000	$1,480,000	- -
2. Bankhead-Jones Act, section 21, Title II (Act of June 29,1935)	12,000,000	12,000,000	12,000,000	- -
3. Bankhead-Jones Act, section 23, Title II of the Act approved June 29, 1935, as amended by the Act of June 6, 1945 (Public Law 76)	8,330,000	8,330,000	8,330,000	- -
Administrative expenses, Federal Extension Service	170,000	170,000	170,000	- -
4. Additional Extension Work(Act of April 24, 1939)	555,000	555,000	555,000	- -
5. Alaska (Act of February 23, 1929)	13,950	13,950	13,950	- -
(Act of June 20, 1936)	10,000	10,000	10,000	- -
6. Puerto Rico (Act of August 28, 1937)	140,000	274,000	408,000	+134,000(1)
Total appropriation or estimate	22,698,950	22,832,950	22,966,950	+134,000

INCREASE

(1) An increase of $134,000 to carry out the provisions of the Act of August 28, 1937, (7 U.S.C. 343f-343g), extending the benefits of section 21 of the Bankhead-Jones Act to Puerto Rico, bringing the amount for fiscal year 1949 to $408,000.

Objective: To broaden the scope of extension activities in Puerto Rico, to help meet urgent food production, health, nutrition, and other needs.

Authorization: In the special Act approved August 28, 1937 (7 U.S.C. 343f-343g), Congress authorized the extension of section 21 of the Bankhead-Jones Act of 1935 to Puerto Rico. This Act authorized the payment of $68,000 to Puerto Rico for the first fiscal year following enactment, with annual increments of $40,000 thereafter until the total would reach $408,000 in 1947, continuing thereafter in that amount. Up to the present time the maximum appropriation for any fiscal year has been $274,000.

	AUTHORIZATIONS			APPROPRIATIONS		
Fiscal Year	Perm. App'n.	Act 8/28/37	Total	Perm. App'n.	Act 8/28/37	Total
1939	$95,069	$88,000	$183,069	$95,069	$45,000	$140,069
1940	95,069	128,000	223,069	95,069	65,000	160,069
1941	95,069	168,000	263,069	95,069	90,000	185,069
1942	103,315	208,000	311,315	103,315	100,000	203,315
1943	103,315	248,000	351,315	103,315	100,000	203,315
1944	103,315	288,000	391,315	103,315	140,000	243,315
1945	103,315	328,000	431,315	103,315	140,000	243,315
1946	103,315	368,000	471,315	103,315	140,000	243,315
1947	103,315	408,000	511,315	103,315	140,000	243,315
1948	103,315	408,000	511,315	103,315	274,000	377,315
1949	103,315	408,000	511,315	103,315	408,000(est)	511,315(est)

The Problem and its Significance: Puerto Rico has more than 245,000 rural families and with the small number of extension workers on the Island, it is impossible to reach several hundred thousand rural people who need assistance in improving their standards of living, growing and conserving larger quantities of essential food for home use, marketing and homemaking, health improvement, etc. Appropriations for fiscal year 1948 will provide for approximately 155 extension workers, or an average of one extension worker for 1,600 rural families. This is too heavy a load for the present staff of county agricultural and home demonstration agents to adequately teach intensive production and conservation of food crops and to carry on 4-H Club work and other extension programs. The dissemination of information under the Smith-Lever Act is more difficult in Puerto Rico than in the States. Many farm and home visits are made on foot or horseback due to the mountainous and poor roads. Rural people can not be reached with information through the radio or telephone because there are very few telephones and radios in rural areas. They can not be reached adequately through the press and bulletins as about half of the rural adults can not read. Meetings are difficult to announce for the same reasons since the people who can not read have no occasion to go to the post office for mail. Most of the rural people can be reached most effectively through personal contacts at their homes. These conditions make a larger staff necessary than for the same number of rural families in the States.

Nutrition Problem: Nutrition has been aggravated by prevailing low incomes, large-size families, unemployment, and marketing difficulties. Results of a nutrition study of rural families indicates that the majority have a daily diet deficient in every nutritional requirement. The effect of such a diet was observed by the prevalence of bleeding, spongy gums, affected eyes, low vitamin blood values, and other subnutritional symptoms. People in rural areas have an average of less than 1/3 of the essential milk, eggs, meat and fresh vegetables and fruits in their diet and twice as much starchy food as needed. All of these conditions which reduce resistance to disease and cause inability to work hard can be remedied primarily by taking the facts to the people. Extension agents, as well as the representatives of other agencies have offered educational information to a large group of the population through lectures, conferences and films on better health and living through proper diets; have emphasized the adequate use of Puerto Rican foods not properly evaluated until now; and have tried to do away with fads and falacies which hinder better nutrition. Before a real and complete educational campaign can be carried out, or even before a small percentage of the population can be well fed, it will be necessary to provide sufficient personnel to reach a greater number of families.

Health Problem: The Extension Service, as an educational agency has been doing everything possible to develop an intelligent approach in matters related to health, hygiene and sanitation and to educate, orient, and guide the rural population with respect to healthier living. There prevails a high mortality rate as well as a high percentage of communicable diseases such as tuberculosis, malaria, influenza, uncinariasis, and others. Perhaps the greatest danger to public health in the Island is the lack of sanitary facilities in the rural homes. Because of poor facilities, nearly all water supplies are contaminated. The death rate in Puerto

(Continued on next page)

Rico is 3 times as great per 100,000 population as it is in the United States.

Housing Problem: A great number of Puerto Rican families live in houses that are badly constructed, and in need of repair. Crowded, dirty and unsanitary, many homes contribute to the poor health of the individuals, undesirable habits and living, and facilitate the spread of disease. More than half of the population live in houses of only two rooms, a living room and a bedroom. About one-third of the families have water piped to their homes, the remainder use water from wells, polluted rivers and streams or rain water. In most houses a few benches, some empty boxes, a small table, one or two cots are about all they have. Much more time must be devoted to this problem by home demonstration agents to try to make the rural homes more healthful and comfortable to provide a better family life where it is so badly needed. This will not be possible unless the present staff is increased.

Educational Problem: A survey through the University of Puerto Rico showed that 1/3 of the entire population are illiterate and another third have attended school less than 18 months. In some rural areas the illiteracy is as high as 80%. Of the 700,000 boys and girls of school age only 293,263 are enrolled in school due to lack of teachers, funds and school rooms. This lack of public school training can be greatly remedied through practical training in 4-H Club work especially in gardening, canning, handicraft and livestock clubs; also through Adult Extension Work.

Production Problems: Since 70% of the crop land of Puerto Rico is hilly, continued educational work is needed to prevent soil erosion through tillage methods, use of grasses and other control practices. An acre of corn in Puerto Rico yields an average of less than 4 bushels. The average production of coffee per acre is only 120 lbs. while it is possible to grow more than 10 times this amount by following methods recommended by the Experiment Station and the Extension Service. A large percentage of the population is employed less than half time with ample time to grow food crops. More county agricultural and home demonstration agents are needed to teach intensive crop production to raise their standard of living.

Marketing Problems: Because of the mountainous topography, transportation is difficult and large sections of the Island are far from the best lines of transportation and communication. This fact increases the handling charges of the farm products because the farmers must use horses and mules to take their farm products to town. The majority of farmers bring their products in small lots to the markets, entirely ignorant of the selling price. As the bulk of the crops come in at one time of the season the prices go very low.

Plan of Work: The staff in many of the 36 counties needs to be enlarged and with the increase in funds there will be employed additional extension workers to intensify extension work along the following lines: Increasing food production and food preservation; increasing production of fruits and vegetables; promoting the planting of new promising crops adaptable to land not suitable for the production of major cash crops, increasing simple practices in nutrition and health; assisting cooperatives, especially among low income farmers as a means to improve their marketing bargaining power and living standards; promoting economic activities, especially in the fields of farm management, debt readjustments and marketing; promoting home industries as a means of increasing the family income of low-income groups; expanding 4-H Club work by reaching every possible rural boy and girl and by promoting more social and recreational activities; promoting and developing the neighborhood leader system. The requested increase would make possible the employment of:

14 Agricultural agents at $4,000 each for salaries and expenses	$56,000
1 Additional 4-H Club specialist at total cost of $3,600	3,600
2 Subject-matter specialists at total cost of $4,000 each	8,000
20 County home demonstration agents at $3,000 each	60,000
Clerical and stenographic assistance	6,400
	134,000

PAYMENTS TO STATES AND TERRITORIES

Funds available for fiscal year 1948 for direct payments to States, Hawaii, Alaska, and Puerto Rico for cooperative agricultural extension work total $27,367,660. In addition, $89,103 was allotted from funds appropriated to the Department of Agriculture for Farm and Other Private Forestry Cooperation making a grand total of $27,456,763 available to the States and Territories for the fiscal year 1948.

The entire amount for payments to the States and Territories is paid directly to a designated officer in each State and Territory and the funds are disbursed by them in accordance with budgets and programs of work submitted by the directors of extension and approved by the Secretary of Agriculture. Some offset by States and Territories is required by law before the funds become available, resulting in extension work being financed about 47 percent from Federal sources and about 53 percent from State and local sources. The funds are used by the States for carrying on extension work with rural people. Paid workers are being assisted by a network of voluntary neighborhood leaders who cooperate in carrying out extension programs.

U. S. DEPARTMENT OF AGRICULTURE

EXTENSION SERVICE

SOURCES OF FUNDS ALLOTTED FOR COOPERATIVE EXTENSION WORK IN STATES, ALASKA, HAWAII, AND PUERTO RICO
FOR THE FISCAL YEAR ENDING JUNE 30, 1948

STATES	GRAND TOTAL	TOTAL FEDERAL FUNDS	TOTAL WITHIN THE STATES	FUNDS FROM FEDERAL SOURCES							FUNDS FROM WITHIN THE STATES		
				SMITH-LEVER	BANKHEAD-JONES SECTION 21 TITLE II	BANKHEAD-JONES SECTION 23 TITLE II	CAPPER-KETCHAM	ADDITIONAL COOPERATIVE	U. S. DEPT. OF AGRIC. CLARKE-MC NARY	U. S. DEPT. OF AGRIC. NORRIS-DOXEY	STATE AND COLLEGE	COUNTY	FARMERS' ORGANIZATIONS ETC.
Alabama	$ 1,783,447.50	$ 1,039,447.50	$ 744,000.00	$ 151,596.66	$ 502,475.28	$ 342,811.38	$ 37,220.03	$ 3,724.15	$ -	$ 1,620.00	$ 339,000.00	$ 400,000.00	$ 5,000.00
Arizona	341,050.41	176,455.41	164,595.00	33,296.96	61,113.21	59,212.02	22,833.22	-	-	-	128,959.40	35,635.60	-
Arkansas	1,405,679.26	864,441.47	541,237.79	118,683.61	419,860.17	284,111.17	33,217.36	6,949.16	-	1,620.00	375,487.79	161,000.00	4,750.00
California	2,507,215.00	624,652.97	1,882,562.03	153,609.36	260,837.46	171,121.35	37,464.80	-	1,620.00	-	1,213,147.03	669,415.00	-
Colorado	605,720.93	321,813.03	283,907.90	48,141.19	110,836.10	109,541.44	24,638.47	27,395.83	1,260.00	-	150,000.00	125,076.90	8,831.00
Connecticut	432,152.94	160,291.94	271,861.00	49,469.04	57,650.95	26,751.99	24,799.96	-	1,620.00	-	200,265.00	59,596.00	12,000.00
Delaware	123,728.04	89,307.74	34,420.30	19,101.13	36,515.26	12,584.53	21,106.82	-	-	-	28,420.30	6,000.00	-
Florida	917,758.38	322,593.82	595,164.56	70,994.31	129,651.51	92,910.28	27,417.72	-	1,620.00	-	303,930.56	291,234.00	-
Georgia	1,921,957.67	1,084,715.27	837,242.40	156,817.49	511,293.31	349,076.82	37,854.95	26,432.70	1,620.00	1,620.00	425,000.00	412,242.40	-
Idaho	520,583.58	250,775.29	269,808.29	34,936.02	92,773.63	93,707.58	23,032.55	3,445.51	1,620.00	1,260.00	186,928.29	82,880.00	-
Illinois	1,923,795.89	833,188.01	1,090,607.88	159,515.89	371,653.23	249,858.88	38,183.11	10,736.90	1,620.00	1,620.00	497,610.00	10,000.00	582,997.88
Indiana	1,606,132.86	676,997.86	929,135.00	120,302.76	313,278.64	208,382.19	33,414.27	-	1,620.00	-	524,665.00	403,510.00	960.00
Iowa	2,003,425.62	770,023.19	1,233,402.43	114,139.96	354,375.33	237,582.47	32,664.80	28,020.63	1,620.00	1,620.00	450,500.00	352,722.43	430,180.00
Kansas	1,550,739.96	558,913.46	991,826.50	84,993.69	238,032.79	154,918.03	29,120.22	50,228.73	-	1,620.00	162,400.00	652,114.80	177,311.70
Kentucky	1,764,985.76	986,860.76	778,125.00	152,977.52	473,004.01	321,871.27	37,387.96	-	1,620.00	-	528,125.00	250,000.00	-
Louisiana	1,527,298.62	687,482.46	839,816.16	109,083.79	326,764.51	217,964.26	32,049.90	-	1,620.00	-	694,285.86	145,530.30	-
Maine	359,093.69	217,652.15	141,441.54	46,109.22	83,322.64	59,992.40	24,391.36	2,216.53	1,620.00	-	104,951.07	36,490.47	-
Maryland	659,647.11	262,065.69	397,581.42	63,063.69	108,235.27	62,693.48	26,453.25	-	-	1,620.00	286,227.42	111,354.00	-
Massachusetts	720,654.58	178,810.17	541,844.41	42,748.46	72,883.76	37,575.30	23,982.65	-	1,620.00	-	169,876.00	371,968.41	-
Michigan	1,609,703.88	733,038.88	876,665.00	139,007.00	332,829.40	222,273.52	35,688.96	-	1,620.00	1,620.00	595,608.00	281,057.00	-
Minnesota	1,263,912.55	727,883.49	536,029.06	110,427.47	348,555.43	233,447.28	32,213.31	-	1,620.00	1,620.00	228,365.00	277,364.06	30,300.00
Mississippi	1,745,717.93	1,056,086.43	689,631.50	135,402.66	524,051.38	358,141.77	35,250.62	-	1,620.00	1,620.00	300,500.00	375,791.50	13,340.00
Missouri	1,545,289.51	891,364.91	653,924.60	140,634.88	424,282.66	287,253.46	35,886.93	1,686.98	-	1,620.00	307,500.00	274,041.06	72,383.54
Montana	630,351.06	259,967.16	370,383.90	34,918.54	83,243.96	84,936.50	23,030.42	32,217.74	1,620.00	-	146,740.00	223,643.90	-
Nebraska	945,543.90	471,945.16	473,598.74	67,417.76	198,975.81	127,167.02	26,982.76	49,781.81	1,620.00	-	242,411.20	231,187.54	-
Nevada	227,337.83	108,280.51	119,057.32	14,795.47	25,698.11	34,048.66	20,583.19	11,955.08	-	1,200.00	45,412.32	73,645.00	-
New Hampshire	312,915.62	115,798.01	197,117.61	24,918.64	45,320.00	20,990.53	21,814.30	1,134.54	1,620.00	-	128,530.50	68,587.11	-
New Jersey	720,851.88	209,163.88	511,688.00	64,818.34	71,390.79	36,514.51	26,666.64	8,153.60	1,620.00	-	225,213.00	286,475.00	-
New Mexico	541,451.55	233,141.80	308,309.75	35,455.41	84,068.40	90,522.28	23,095.71	-	-	-	207,809.75	95,000.00	5,500.00
New York	2,866,899.50	687,910.20	2,178,989.30	175,677.81	282,400.98	186,442.80	40,148.61	-	1,620.00	1,620.00	929,936.30	1,077,451.00	171,602.00
North Carolina	2,836,329.64	1,279,980.64	1,556,349.00	196,032.50	616,134.72	423,569.41	42,624.01	-	1,620.00	-	820,631.00	735,718.00	-
North Dakota	648,787.16	372,807.66	275,979.50	46,527.70	137,807.12	123,705.06	24,442.25	38,705.53	1,620.00	-	74,717.50	201,262.00	-
Ohio	1,664,126.71	904,899.71	759,227.00	174,344.00	411,078.06	277,871.25	39,986.40	-	1,620.00	-	419,511.00	333,941.00	5,775.00
Oklahoma	1,504,989.36	791,702.59	713,286.77	114,335.77	354,232.35	237,480.88	32,688.61	51,344.98	-	1,620.00	428,951.00	284,335.77	-
Oregon	1,099,871.18	286,441.18	813,430.00	49,965.31	112,951.25	97,044.31	24,860.31	-	1,620.00	-	577,136.00	236,294.00	-
Pennsylvania	1,590,030.47	879,901.58	710,128.89	247,302.93	348,623.69	233,495.78	48,859.18	-	1,620.00	-	580,128.89	130,000.00	-
Rhode Island	122,208.21	65,452.21	56,756.00	14,294.63	26,217.56	4,417.74	20,522.28	-	-	-	40,000.00	13,400.00	3,356.00
South Carolina	1,327,168.10	733,995.61	593,172.49	112,682.90	349,274.61	233,958.28	32,487.60	2,352.22	1,620.00	1,620.00	532,800.00	54,172.49	6,200.00
South Dakota	604,714.43	374,249.13	230,465.30	44,727.29	130,397.99	113,440.68	24,223.30	59,839.87	-	1,620.00	215,454.03	15,011.27	-
Tennessee	1,588,809.96	987,147.56	601,662.40	145,266.42	478,227.94	325,583.01	36,450.19	-	1,620.00	-	375,000.00	220,852.40	5,810.00
Texas	3,042,009.86	1,742,278.82	1,299,731.04	260,920.43	795,775.47	551,208.89	50,515.24	82,238.79	1,620.00	-	464,214.68	824,228.36	11,288.00
Utah	437,648.43	188,843.43	248,805.00	27,534.10	57,596.34	66,713.19	22,132.38	13,607.42	1,260.00	-	177,000.00	71,805.00	-
Vermont	319,410.43	153,492.43	165,918.00	26,902.05	58,269.54	39,191.52	22,055.51	5,453.81	1,620.00	-	100,000.00	65,918.00	-
Virginia	1,594,533.01	798,607.34	795,925.67	134,126.66	374,361.83	251,783.41	35,095.44	-	1,620.00	1,620.00	536,982.67	258,943.00	-
Washington	978,222.13	356,195.46	622,026.67	68,315.60	142,282.78	116,885.13	27,091.95	-	1,620.00	-	323,722.99	298,303.68	-
West Virginia	866,063.39	488,765.39	377,298.00	107,955.11	211,331.54	135,946.10	31,912.64	-	-	1,620.00	260,878.00	103,400.00	13,020.00
Wisconsin	1,475,963.35	714,155.35	761,808.00	114,455.52	337,178.24	225,363.49	32,703.17	1,214.93	1,620.00	1,620.00	276,952.18	481,855.82	3,000.00
Wyoming	417,431.70	173,247.36	244,184.34	21,256.35	46,185.03	63,605.15	21,368.92	19,571.91	1,260.00	-	146,510.34	97,674.00	-
Alaska	48,950.00	23,950.00	25,000.00	13,950.00	-	-	10,000.00	-	-	-	25,000.00	-	-
Hawaii	469,485.77	159,252.80	310,232.97	21,394.87	66,699.96	33,181.55	21,385.77	16,590.65	-	-	310,232.97	-	-
Puerto Rico	740,270.00	378,935.19	361,334.81	103,315.19	274,000.00	-	-	-	1,620.00	-	361,334.81	-	-
Unallotted	1,393.00	1,393.00	-	-	-	1,150.00	-	-	243.00	-	-	-	-
GRAND TOTAL	$58,463,459.30	$27,456,763.06	$31,006,696.24	$4,718,660.06	$12,274,000.00	$8,330,000.00	$1,490,000.00	$555,000.00	$57,483.00	$31,620.00	$17,174,962.85	$12,268,128.27	$1,563,605.12

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The use of these funds is indicated in greater detail in the following tables. Table 1 indicates the sources of funds allotted for cooperative extension work in the States, Alaska, Hawaii, and Puerto Rico for 1948. Table 2 shows estimated direct payments to the States and Territories for 1949 indicating those which require offset by State, county or local funds, those where such offset is not required, and the basis of allotment. Table 3 shows by States, the allotments available to States and Territories for 1948 and 1949 as contemplated by the Budget estimates. Table 4 indicates the various classes of field agents employed with extension funds.

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Table 2. --Statement of direct payments to States, Hawaii, Alaska, and Puerto Rico, indicating those requiring offset by States and Territories, those not requiring such offset, and basis of distributions, as estimated for 1949.

Item	Total estimate, 1949	Amount to be paid without offset	Amount requiring offset and basis of allotment	
			Amount	Basis of Allotment
1. Permanent annual appropriation (Smith-Lever Act)	$4,704,710	a/ $500,000	$4,204,710	Rural population.
2. Capper-Ketcham Act	1,480,000	b/ 980,000	500,000	Rural population.
3. Bankhead-Jones Act, Section 21, Title II	12,000,000	c/ 12,000,000	- -	Farm population.
4. Bankhead-Jones Act, Section 23, Title II of the Act approved June 29, 1935, as amended by the Act of June 6, 1945 (Public Law 76)	8,330,000	- -	8,330,000	Farm population, except $500,000 to be allotted by Secretary of Agriculture on basis of special needs.
5. Additional extension work	555,000	555,000	- -	Specified by law.
6. Alaska	23,950	d/ 20,000	3,950	Rural population.
7. Puerto Rico	408,000	408,000	- -	Specified by law.
Total, direct Federal payments	27,501,660	14,463,000	13,038,660	

a/ $10,000 to each State, Hawaii, and Puerto Rico.
b/ $20,000 to each State and Hawaii.
c/ $20,000 to each State, Hawaii (balance on farm population basis).
d/ $10,000 to Alaska (Act of February 23, 1929), $10,000 to Alaska (Act of June 20, 1936).

Table 3. —Allotments to States and Territories under Federal funds for cooperative agricultural extension work (including Clarke-McNary and Norris-Doxey extension allotment.)

State	Appropriation 1948	Budget Estimate 1949
Alabama	$1,039,447.50	$1,039,447.50
Arizona	176,455.41	176,455.41
Arkansas	864,441.47	864,441.47
California	624,652.97	624,652.97
Colorado	321,813.03	321,813.03
Connecticut	160,291.94	160,291.94
Delaware	89,307.74	89,307.74
Florida	322,593.82	322,593.82
Georgia	1,084,715.27	1,084,715.27
Idaho	225,775.29	225,775.29
Illinois	833,188.01	833,188.01
Indiana	676,997.86	676,997.86
Iowa	770,023.19	770,023.19
Kansas	558,913.46	558,913.46
Kentucky	986,860.76	986,860.76
Louisiana	687,482.46	687,482.46
Maine	217,652.15	217,652.15
Maryland	262,065.69	262,065.69
Massachusetts	178,810.17	178,810.17
Michigan	733,038.88	733,038.88
Minnesota	727,883.49	727,883.49
Mississippi	1,056,086.43	1,056,086.43
Missouri	891,364.91	891,364.91
Montana	259,967.16	259,967.16
Nebraska	471,945.16	471,945.16
Nevada	108,280.51	108,280.51
New Hampshire	115,798.01	115,798.01
New Jersey	209,163.88	209,163.88
New Mexico	233,141.80	233,141.80
New York	687,910.20	687,910.20
North Carolina	1,279,980.64	1,279,980.64
North Dakota	372,807.66	372,807.66
Ohio	904,899.71	904,899.71
Oklahoma	791,702.59	791,702.59
Oregon	286,441.18	286,441.18
Pennsylvania	879,901.58	879,901.58
Rhode Island	65,452.21	65,452.21
South Carolina	733,995.61	733,995.61
South Dakota	374,249.13	374,249.13
Tennessee	987,147.56	987,147.56
Texas	1,742,278.82	1,742,278.82
Utah	188,843.43	188,843.43
Vermont	153,492.43	153,492.43
Virginia	798,607.34	798,607.34
Washington	356,195.46	356,195.46

Table 3 - Continued

State	Appropriation 1948	Budget Estimate 1949
West Virginia	488,765.39	488,765.39
Wisconsin	714,155.35	714,155.35
Wyoming	173,247.36	173,247.36
Alaska	23,950.00	23,950.00
Hawaii	159,252.80	159,252.80
Puerto Rico	378,935.19	512,935.19
Unallotted	1,393.00	1,393.00
	27,456,763.06	27,590,763.06

Table 4 --Extension field agents employed June 30, 1944, 1945, 1946, and 1947

	June 30, 1944	June 30, 1945	June 30, 1946	June 30, 1947
State supervisors	654	633	703	729
Subject-matter specialists:				
Full-time specialists	1,287	1,268	1,342	1,420
Part-time specialists	358	386	343	407
Total specialists	1,645	1,654	1,685	1,827
Total with headquarters at colleges	2,299	2,287	2,388	2,556
County workers:				
Agricultural agents	3,671	3,502	4,268	4,407
Home demonstration agents	2,328	2,295	2,632	2,808
Boys' and girls' club agents	331	296	432	553
Negro extension agents	551	548	699	733
Total county workers	6,881	6,641	8,031	8,501
TOTAL	9,180	8,928	10,419	11,057

Number of counties in the States, Hawaii, and Puerto Rico..... 3,097
Number of counties now having one or more agents..... 2,990

STATUS OF PROGRAM

Current Activities: Federal, State and county governments share in the cost of maintaining the Cooperative Extension Service. About 47% of the total cost comes from the Federal Government and 53% from State and local sources. The U. S. Department of Agriculture and the Land-Grant Colleges also share in the research upon which the educational effort of extension workers is based. Such research coming from U. S. D. A. and Land-Grant College (State experiment stations) laboratories is further adjusted at the county level to local farm experience and adapted in a practical way to the problems and conditions existing there.

Each of the 48 States and the Territories of Hawaii, Alaska, and Puerto Rico has a director of Extension, a State administrative and supervisory staff, with headquarters in most cases at the State agricultural college; and county agricultural agents, county home demonstration agents, and assistant county or 4-H Club agents, who have their offices usually at the county seats. With its State and county workers, and volunteer farm men and women leaders in the communties and neighborhoods, Extension reaches in a personal way about 80% of the farm families in the United States. Cooperative Extension Work is a joint democratic enterprise -- farm people with their county, State, and Federal governments -- cooperatively financed, cooperatively administered. It is education in agriculture and home economics -- primarily of rural people ... men, women, youth. It is practical education which applies science to real life situations on a learn-to-do-by doing basis. The activities of the entire cooperative extension organization in Washington and in the 48 States, Alaska, Hawaii, and Puerto Rico, are directed toward --

1. Improvement of the economic, social, and spiritual well-being of the farm family.

2. Improvement of farm income through the application of science and farm mechanization.

3. Improvement of health through better nutrition and more adequate health facilities and services.

4. Improvement of family living through better housing, rural electrification and more adequate labor saving equipment

5. Improvement of educational and recreational facilities for the home and the community.

6. Development of a better understanding of, and more effective participation in community, State, national, and international affairs to the end that constructive policies may be determined.

7. Conservation of resources so that future generations may also have adequate nutrition.

Typical Examples of Recent Progress:

1. Extension agents during the year influenced 4½ million farm families and 2 million other families to improve their farming and homemaking practices. In doing this they spent about two-thirds of their time in direct field work with farm people and about one-third in their offices. The agents visited 2 million farms, distributed 18 million bulletins, made 47,000 radio talks, and cooperated with newspapers in releasing 725,000 educational news and advice stories. They received 7 million telephone calls for help and 9 million visits to their offices. They conducted 800,000 method and result demonstrations on better farming and homemaking practices and held meetings which 52 million people attended.

2. Planning what to do on the farm and in the home is a problem for farm people each year. In times of adjustment like this year with an uncertain long-time outlook for many farm commodities, balanced farming plans take an added importance. More and more farmers are looking to the agents for help in making "complete balanced farming" plans for the entire home as a unit. All phases of organizing the farm, conserving the soil and forest resources, providing food for the family, making the best use of capital, land, labor, and equipment and the best production practices are brought together in one long-time fairly detailed plan. The number of farms that can be practically assisted with such complete plans is obviously limited by the number of agents and assistants in the county.

3. As farmers grow in their skill and in their confidence in the results of scientific research, they increase their demands on the county extension office. In each State and county the Extension Service has a responsibility to see that the informational channels are kept functioning. In Alabama last year farmers saved 14 million dollars by controlling insects as recommended by extension agents. Iowa's poultry raisers made half a million dollars extra by keeping only pullets or first year layers in their flock. Seventy-nine percent of the poultrymen in the State followed that advice. Dairymen in dairy-herd-improvement associations in California are 76 million dollars better off each year because they are getting 90 pounds more butterfat per cow then when they started the breeding and feeding improvement program. Extension agents helped Arkansas farmers save $1,140,000 by showing them how to use material and labor on the farms in building 1,854 homes. Crop improvement associations, largely organized by the Extension Service during the last year certified nearly 70 million bushels of improved planting seed-corn, wheat, cotton, alfalfa, potatoes, and a dozen other crops. Records show that certified seed of improved strains will generally give about 25% more yield than common seed.

4. There are now 1,800,000 boys and girls in the 74,500 4-H Clubs. 4-H boys and girls carried projects in all lines of farm and home work; they raised livestock, canned food, made clothes, improved their homes, ran their own clubs, tackled community problems and discussed world affairs. This "learn by doing" training is basically aimed at making better farmers, homemakers, leaders and citizens. This influence is far reaching - more than 12 million boys and girls have had 4-H Club training during the last 25 years.

5. Membership in home demonstration clubs increased about 36,000 during the year. There are now more than 1,162,000 home demonstration club members in 50,000 local clubs. These club members make up about 38 percent of the 3,075,000 families influenced by home demonstration work.

6. Considerable progress has been made under the incentive of the funds provided thus far by Section 23 of the Bankhead-Jones Act. The $8,500,000 increased funds made available under the act in 1947 was used largely to employ personnel to expand the work in the counties, including employment of 138 county agricultural agents, 219 home demonstration agents, 185 Negro agents, 257 4-H Club agents, and 1056 assistant agents. The increase in extension personnel, largely in the counties, has allowed cooperative extension agents to respond to the demands of farm people for services of wider scope. Increased effort is being made to better train field extension workers. More than half of the States now have definite training plans for all new workers. Credit courses in extension organization and methods are given in 28 land-grant colleges. About 400 extension workers took leave for 3 or 4 weeks to attend summer schools or short courses on extension work.

SUMMARY OF EXTENSION INFLUENCE - CALENDAR YEAR 1946

Farms changing agricultural practices	3,905,665
Farm homes changing home economics practices	1,998,632
Other homes changing home economics practices	1,076,557
Farm homes with 4-H Club members enrolled	942,954
Other homes with 4-H Club members enrolled	251,885
Different farm families influenced by some phase of the extension program	4,494,808
Different other families influenced by some phase of the extension program	2,113,683

SOME ACTIVITIES OF COUNTY AGRICULTURAL, HOME DEMONSTRATION AND CLUB AGENTS

General Activities	Activities reported for all lines of work, Home Demonstration, 4-H Club and County Agricultural Agent: Number	Counties reporting
Percent of time devoted to:		
Work with adults	65.78	
Work with 4-H Clubs and older youth	34.22	
Office work	39.18	
Field work	60.82	
Farm or home visits made	3,436,654	2,988
Different farms or homes visited	2,000,647	2,987
Office calls	9,023,763	2,987
Telephone calls	7,444,154	2,977
News articles or stories published	725,697	2,973
Bulletins distributed	17,858,300	2,975
Radio talks broadcast or prepared for broadcasting	47,655	1,635
Adult leader-training meetings held	69,473	2,650
4-H Club and older youth leader-training meetings held	41,506	2,518
Method demonstration meetings held for adults	376,238	2,852
Method demonstration meetings held for 4-H Clubs and older youth	288,794	2,642
Adult result demonstration conducted	212,000	2,442
Adult tours conducted	9,477	1,999
4-H Club and older youth tours conducted	15,115	1,928
Achievement days held for adults	5,376	1,806
Achievement days held for 4-H Clubs and older youth	17,219	2,486
Total of all meetings held by agents	1,340,023	2,900
Total attendance at such meetings	43,078,103*	2,899

*Does not include attendance at meetings held by local leaders.

(b) Salaries and expenses, Administration and Coordination of Extension Work

Appropriation Act, 1948	$827,200
Budget estimate, 1949	827,200
Change, 1949	- -

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
1. General administration and business service	$171,631	$182,888	$182,888
2. Review and analysis of State budgets, projects, and plans, and examination of State expenditures from Federal payments	56,788	60,778	60,778
3. Planning and coordination of State and county extension work	156,777	156,578	156,578
4. Development of technical subject matter for use by State extension forces	220,259	219,629	219,629
5. Field studies of extension work, and the training of extension workers	84,616	86,429	86,429
6. Preparation and distribution of visual material and extension literature to Department and State extension forces	119,437	120,898	120,898
Unobligated balance	16,139	- -	- -
Total available	825,647	827,200	827,200
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+1,553	- -	- -
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act costs)	-46,000	- -	- -
Transfer in estimates from "Salaries and expenses, Office of Secretary of Agriculture	-4,300	- -	- -
Total appropriation or estimate	776,900	827,200	827,200

ITEMIZATION OF ESTIMATES

Appropriation: Salaries and Expenses, Extension Service, Administration Coordination of Extension Work

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$827,200	$827,200	- -
Reimbursements for services performed	6,230	6,230	- -
Payments received from non-Federal sources	3,000	--	-3,000
Total obligations (inclusive of reimbursements)	836,430	833,430	-3,000

Obligations by Objects

Standard Classification			
01 Personal services	712,879	713,729	+850
02 Travel	62,829	62,829	- -
03 Transportation of things	22,000	22,000	- -
04 Communication services	6,000	6,000	- -
05 Rents and utility services	950	950	- -
07 Other contractual services	25,082	22,082	-3,000
08 Supplies and materials	2,900	2,900	- -
09 Equipment	3,790	2,940	-850
Grand total obligations	836,430	833,430	-3,000
Reimbursements for services performed	6,230	6,230	- -
Payments received from non-Federal sources	3,000	- -	-3,000
Total available (exclusive of reimbursements)	827,200	827,200	- -

STATUS OF PROGRAM

Current Activities: Federal Extension office functions as an administrative and coordinating organization for the whole cooperative agricultural extension service. It promotes close cooperation between the Federal Department of Agriculture and the State land-grant colleges in aiding rural people to attain more efficient farming, better homes, and a more satisfactory rural life. It administers the various acts of Congress relating to extension work which involves policies and programs for cooperative extension work, and reviews budgets for State extension activities, projects, plans of work and financial reports to ascertain that Federal contributed and State offset funds are expended in accordance with the applicable laws and agreements.

General supervision is maintained of the work of the large force of county agents and home demonstration agents which centers in and clears through the Federal Extension Service, in order that national standards and principles in organizing and conducting extension work on the county level will be followed throughout the country. Activities relating to the Federal administration and coordination of cooperative extension work are described under the following projects:

1. General Administration and Business Service: The Office of the Director is responsible for the over-all planning and direction of the nationwide system of cooperative extension work, including determination of policies and procedures. Business operations are grouped under the Division of Business Administration and includes personnel, budget, fiscal, and general administrative matters.

2. Review and Analysis of State Budgets, Projects, and Plans, and Examination of State Expenditures from Cooperative Extension Funds: The staff under this project reviews all budgets and plans of work submitted annually by the States and Territories, as required by the Smith-Lever and supplementary extension acts. Due to the enlarged program assigned to the Extension Service, budgets and more than 1200 plans of work were reviewed in the fiscal year 1947 covering contemplated expenditures of more than $58,000,000 of Federal and State Extension and Farm Labor funds. Vouchers involving approximately $42,000,000 of Federal and State offset funds, including payrolls and travel expenses, were reviewed to determine if each expenditure was in accordance with the purpose of the appropriation, limitations placed by Congress, and in line with approved work plans and projects.

3. Planning and Coordination of State and County Extension Work: The technical staff under this project consists of eighteen members whose chief duty it is to work in a cooperative manner with State extension

directors and supervisors on the organization, planning, coordination and operation of extension work in the 48 States and three Territories to reflect significant national, regional and State situations. The work involves the effective planning of the program to make best use of the contributions of the subject matter specialists, county extension workers, volunteer leaders and various agencies of the state and federal governments. The staff centers its activities on the work of the 8400 county extension agents who are the base of the entire Extension structure. The primary objective is to aid these 8400 county extension agents in the carrying out of an effective educational program, consisting of useful and practical information in production and conservation of food and feed and other subjects relating to agriculture and home economics and to encourage the application of the same. This close liaison with the States contributes much to the partnership of the State colleges and the Department of Agriculture in carrying on cooperative extension work.

4. Development of Technical Subject Matter for Use by State Extension Forces: The subject-matter specialist staff provides State and county extension forces with the results of research and essential information regarding national and regional programs for agriculture and home economics. The work is divided under three work projects, as follows:

a. Development of Technical Subject Matter in Agriculture
b. Development of Technical Subject Matter in Agricultural economics and rural sociology
c. Development of Technical Subject Matter in Home Economics

(a) Development of Technical Subject Matter in Agriculture is planned and coordinated by a staff of 20 subject matter specialists who are responsible for providing the essential technical material and for so organizing it that it can be used effectively by State extension forces. They act as liaison between the various Bureaus and agencies of the Department and are responsible for carrying the results of the research work of the Department to the State extension forces for incorporation in State and county programs. These specialists also collaborate with State specialists in the development of sound programs for the improvement of farm income and living conditions.

The subject matter developed by this staff covers the range of agricultural science and technology of the bureaus of the Agricultural Research Administration and the related production activities of the Production and Marketing Administration, together with the farm application of programs of the Soil Conservation Service, the Forest Service, the Rural Electrification Administration, and relationships with Federal and national programs for farm safety and fire prevention, and farm housing.

(b) Development of Technical Subject Matter in Agricultural Economics and Rural Sociology is divided into five fields: general economics and outlook; farm management, marketing, farm credit, and rural sociology.

The staff assists the States in developing and improving their extension programs with rural people in economics and related fields, assists State economists and rural sociologists in developing appropriate plans of work and annual reports and reviewing these as they are submitted to the Federal Extension Office; develops educational programs in connection with agriculture and rural life; reviews economics research work developed by research agencies and assists in incorporating their findings into State economics extension programs; works with other Federal agencies in developing economic aspects of programs in outlook, agricultural adjustment, price supports, marketing, land use adjustment, and production goals; informs State extension workers of action taken by Federal agencies which will affect farmers and reflect reaction to programs of the Federal action agencies; and develops regional or national economic analyses pertinent to special problems.

(c) Development of Technical Subject Matter in Home Economics: The Federal specialists under this project conduct cooperative extension work with 263 state extension specialists in home economics subject to make available to farm people through the State and county cooperative extension work the scientific and technical findings in human nutrition, clothing, housing, home management, and other home economics subjects.

Human nutrition includes the planning of the family food supply, home food production, improving methods of home food preservation, improved methods of meal planning and food preparation, physical fitness, rural health centers, and clinics, and school lunch work.

5. Field Studies of Extension Work and the Training of Extension Workers: Field studies are conducted to determine the effectiveness of extension administration, organization, programs and methods of teaching to provide an objective basis for the improvement of extension work with rural people and to make recommendations for adjustments. Factual data on national accomplishments of the cooperative extension service are collected and analyzed; comprehensive personnel training programs for county, State and Federal extension workers are organized.

6. Preparation and Distribution of Visual Material and Extension Literature to Department and State Extension Forces: Over 11,000 cooperative extension workers are supplied with educational and informational materials to instruct and guide them in the use of proven techniques for preparing and using visual aids, publications,

radio and other media in their local educational work. Other activities include: (a) supplying supporting educational information to the national and regional magazines, radio stations, newspapers and other outlets, (b) coordinating the information work of Department agencies with that of the cooperating state extension services in support of the Department programs, and (c) informing the public nationally of cooperative extension activities and results.

Typical Examples of Recent Progress. Among recent accomplishments are included the following:

4-H Club Work: Membership in 4-H Club work is now 1,800,000 boys and girls. The Extension Service spearheaded the National 4-H Club Week in March 1947 and the National Achievement Week in November 1946, organized and directed the National 4-H Club Camp in Washington in June 1947, and promoted the participation of 4-H Clubs in Rural Life Sunday and in the Farm Safety Campaign. The 10-point program for 4-H Club work developed last year in cooperation with State Club leaders and extension directors is now being adapted to various situations. The committee of State directors and State Club leaders was given assistance in the preparation of a National 4-H Club Health Program.

To make more food available at home and abroad, 4-H members, according to State 4-H Club leaders' estimates, produced and conserved food as follows:

Garden products	125,000 acres
Poultry products	9,000,000 birds
Livestock	725,000 head
Food crops	425,000 acres
Food prepared or served	19,000,000 meals
Products canned	36,000,000 quarts
Food brined	280,000 gallons
Food dried or cured	3,500,000 pounds
Food stored or frozen	9,000,000 pounds

They helped to interpret to the community, the Nation's peace-building programs, particularly in the production and conservation of food and the sending of food and other gifts to those in distress in foreign lands.

Work Among Negroes: A Farm Unit program in Negro work has been developed and a strong-live-at-home program and 4-H program for Negro boys and girls has been emphasized. During the year stress was continued on several problems including improving landlord-tenant relationships; improving health and living conditions of the tenant and share-cropper Negro; producing more food to improve the diet through gardens, cows, poultry and hogs; producing higher income from farm operations. Keeping his hands on the plow to help meet the nation's food and fiber needs, the Negro farmer also tried to create a better life on the farm for himself and his family.

In 42 counties in North Carolina where negro county agents are employed there are more than 44,000 Negro farm families. Extension personnel aided 28,000 - nearly two thirds of the total - in improving the family food supply during the year.

Agronomy: State extension agronomy work stressed the following: Seed improvement program; pasture improvement; forage crop improvement; fertilizers and lime; small grain; corn improvement; weed control; cover crops; erosion control; soil testing; insect and disease control; potato improvement; tobacco improvement; moisture conservation; mow hay drying work; and 4-H Club work.

Seed improvement work is the foundation upon which all crop improvement work is based, and is the leading project in extension agronomy, with organized programs in 39 States. State crop improvement associations have a total membership in the 39 States of 24,954 farmers producing certified seed. Almost any farmer can now get either the first or second generation of seed from certification. New and improved strains outyield common seed by 25 percent. Through this program it is possible, as was the case in Illinois, Indiana and Iowa, to start with 1,200 bushels of foundation seed of Clinton oats and increase this until at the end of the 1946 season there was available for distribution a total of 1,585,676 bushels of certified seed.

Horticulture: Extension work in horticulture included continued emphasis on: (1) commercial vegetables; (2) home gardens; (3) commercial fruit production; (4) home fruit production; (5) landscape gardening; (6) 4-H Club work. Work with commercial vegetables included demonstrating improved varieties, seed certification problems, weed control, keeping abreast of processing and marketing methods. Commercial fruit production work included: evaluating and improving varieties of tree fruits and small fruits; demonstrating improved methods of pruning, spraying, thinning, weed control, etc; fruit marketing activities.

Plant Pathology: Extension work in plant pathology is aimed at production and conservation of crops and crop products used for food, feed, fiber, and other purposes.

Efforts to develop disease-resistant varieties of crop plants are meeting with success. In North Carolina between 55,000 and 60,000 acres of Oxford 26 tobacco, a variety resistant to Granville wilt, were planted at a saving to growers of 6 to 7 million dollars. In Kansas, the increased potato crop is estimated at nearly $100,000 due to the use of certified or field inspected seed, and 44 percent of the commercial acreage was planted with hill-selected or certified seed. Seed treatment in Minnesota in 1946 yielded an increase of 22,726,000 bushels of grain. Benefits from planted treated, or cleaned wheat seed in Kansas was estimated at over 30 million dollars. The corn-seed-treatment program in Colorado has reduced losses effecting savings of 2½ million dollars.

Entomology:

1. Alabama - Farmers saved about $14,240,000 through control of insects affecting crops and livestock. Three and a quarter million pounds of calcium arsenate applied to 175,367 acres of cotton saved $6,137,000 in this State. Peanuts worth $6,016,655 were saved from insect damage by applying about 5 million pounds of insecticides according to Extension recommendations.

2. Arkansas - 95 percent of the cotton in Delta parts of a county and 70 percent of the Hill section were treated as results of a warning from the State Extension entomologist.

3. Pennsylvania - Reports of monetary loss from Hessian fly has varied from $2,106,000 in 1942 to $463,560 in 1946, and that the Potato insect control program netted farmers a gain of 6 million dollars. Fruit spray service conducted by extension entomologists saved Pennsylvania fruit growers $853,800.

Animal Husbandry: Extension workers are emphasizing: (1) balancing livestock numbers with feed resources by constructive culling as a means of achieving the national production and slaughter goals for meat animals; (2) extending livestock conservation practices including disease and parasite control; (3) reduction of production costs by making greater use of pasture, forage, and other roughage, stressing quality of these products; (4) improving diets by intelligent use of vitamin, protein and mineral supplements; and (5) the expansion in use of breeding stock of known ability to improve.

Beef herds are being classified as to type and breeding performance as a basis for selection and culling. Herd and flock sires are being rated on type and inherited qualities in public auctions by extension specialists, and bulls are classified prior to turning out on the range. Practically all States, where swine production is of commercial importance, are conducting sow testing products.

Poultry: Extension workers have been very active in keeping the producers and consumers of poultry products informed regarding the trends and changes in the industry. Some of the programs in which these extension specialists are actively directing, assisting, and promoting are: (1) the National Poultry Improvement Plan, promoted in 47 States; (2) the National Turkey Improvement Plan, adopted in 45 States; (3) the "Chicken-of-Tomorrow" Program, organized in 44 States; (4) the "All-Pullet" Flock advocated; (5) the 4-H Poultry Club activities; (6) Diagnosis of Newcastle disease.

Meat Preservation and Frozen Food Locker Storages: Meat extension work covers the production and preservation of an adequate home raised meat supply. Some 2½ billion pounds of meat is processed annually by farmers for their own tables. Some of this is canned, some cured, and an increasing

proportion is preserved by freezing. Over 8,000 frozen food locker plants containing 4 million lockers are now located through all the States. $2\frac{1}{2}$ million users of these lockers are farmers. Over 80 percent of the 1.4 billion pounds of food handled through these locker plants is meat. Pressure on State and county extension workers for information on freezing methods and advice on the purchase or operation of freezing equipment and supplies has increased in all the States.

Dairy Husbandry: Extension work in dairy husbandry is coordinated in the long-Range Dairy Program. In this program cooperation has continued with the Bureau of Dairy Industry and other agencies and organizations, and extension workers, farmers and processors are working toward the same goal in dairy production - the greatest production of milk of highest quality consistent with economy.

Dairy herd improvement associations are organized and supervised by the Extension dairymen in each State. There has been a large expansion of the Dairy Herd Improvement Association work during the year. In number of herds on test in DHIA's there was an increase from 23,331 herds on January 1, 1946 to 28,812 one year later. This is an increase of 23.5 percent. An increase is also noted in number of cows on test which was 627,875 on January 1, 1946 and increased to 775,546 by January 1947.

Extension agents in all States have aided materially in helping farmers to produce better milk. There has been expansion also in the organization and use of artificial insemination in dairy herds. The total number of herds using this service on January 1, 1947 was 140,571 containing 1,125,040 cows. Total cows actually bred artificially in 1946 was 537,376.

Agricultural Engineering: Extension agents aid farmers in producing agricultural commodities of high quality more efficiently. Through the use of power, cost and drudgery are reduced. Farmers were disappointed in 1946 and again in 1947 in their expectations of obtaining new machinery. Aid was given farmers to make work-worn tractors and other machines available for use again to produce and harvest bumper crops. County agents assisted farmers with 600,000 machinery problems. Labor continued scarce and time-and-labor-saving devices and methods were encouraged. In several States exhibition trains or caravans have been used effectively. In one State the total attendance was over 90,000. Average attendance in several States has exceeded 1,000 to each stop.

Farm requirements and demands for building materials continue to exceed supplies. The six million farms over the entire country are continually replacing, altering, or constructing new houses or buildings. Plans and advice were furnished to more than 25,000 farm families for new houses construction in 1,600 counties. Nearly 70,000 families were assisted with house remodeling in 2,000 counties.

Cotton Ginning: Cotton ginning work directly supports 7-Step Cotton Program.

Assistance is given to producers and ginners in problems connected with harvesting, handling, and ginning seed cotton to preserve the quality of the cotton fiber and seed in order to realize full market value.

A part of the effort of this program is directed toward encouraging and assisting ginners to provide suitable equipment in order to properly dry, clean, gin, and bale the farmer's cotton. Rapid strides have been made by the ginning industry in practically every State along this line during the past few years. In addition to replacements of obsolete or worn-out machinery for which records are not available, ginners have added many hundreds of expensive drying, extracting and cleaning machines in plants where none existed heretofore.

Outlook, Production Adjustments and Economic Information: Particular attention has been given to the long-term demand for various agricultural products and the adjustments in farm organization and management that need careful consideration during the years ahead. State and county extension workers are kept informed of current economic developments, including changes in price policy, world food production, income tax regulations, farm land values, production goals, etc.

Farm Tenure: Farm tenure problems are important to most people and others interested in the welfare of farm people. The extension economists work with State extension workers and other agency personnel on tenure problems dealing with, among other things, farm rental and partnership arrangements, lease forms, father-son agreements, employer-employee relations, contractual relations, and farm ownership and transfer.

Farm Financing: Continued effort is being made to improve the level of living and security of farm families by providing information on the sound investment of funds and the wise use of credit. The work with individual families is being supplemented by working with lending institutions and with farmers' cooperatives.

Assistance to Young Farmers and Others Getting Started Farming: Educational work in farm tenure, farm financing, outlook and farm and home planning has been geared for use by this group. Individuals as well as organized groups of young farmers are being assisted in the use of all economic information by helping them apply it in the solution of their individual problems.

Cooperative Marketing: The Extension Service in every State and Territory does educational work on one or more phases of cooperative marketing. During the past year assistance was given in organizing 1,268 new cooperatives and educational work was done with 8,070 established cooperatives. This work involved 1.9 million members and 1.6 billion dollars of products sold or purchased.

Cotton Marketing: In 1946, definite work on the marketing of cotton and cottonseed was done in 437 counties involving 6,287 communities. Assistance

was given producers in the organization of cotton improvement associations and the effective utilization of the Smith-Doxey Classing Service and market news program in selling their cotton. Preliminary work was also started toward the development of cotton marketing demonstrations on the basis of improved varieties, quality control, and improved local marketing methods.

Dairy and Poultry Marketing: Special attention was given to dairy and poultry marketing in order to obtain stability in the market and avoid gluts in the spring and summer and shortages during the fall and winter. Increased attention was given to the development of new market outlets and to informing producers of new processing methods for eggs, poultry, milk, and dairy products. Information was provided producers to guide them in their efforts to eliminate such uneconomic services as overlapping truck routes.

Livestock Marketing: Educational work in marketing of livestock and wool during the past year was carried on in 1,834 counties, involving more than 18,000 communities. Major emphasis was given to the use of U. S. Standards for grading livestock and to increasing returns to growers through quality production and efficient marketing. Marketing demonstrations of selling feeder calves according to grade were carried on in a number of States. Producers participating in these demonstrations were paid for their calves according to quality and have thereby stimulated expansion in quality production.

Foods and Nutrition: Food remains the most important part of the family budget and has utmost significance in these days when world-wide plans are being made in relation to food supplies and prices. Changes in food storage and marketing are revoluntionary. Outstanding results were:

1,443,646 families improved diets,
1,279,931 families assisted in food preparation,
1,626,949 families improved food production,
250,343 families aided in butchering,
1,939,412 families aided with food preservation,
649,775 families aided in freezing.
274,941 4-H Club members completed food preservation,
371,124 4-H Club members completed food preparation,
17,209 schools assisted in establishing school lunches.

Contrasting statistics show the growth of home management-housing activities from 1945 to 1946:

Work	1945	1946
Number of families assisted in remodeling.....	68,956	109,775
Number of families assisted in installing water systems.....	23,067	41,475

Number of families assisted in adding storage	170,594	209,018
Number of families assisted in improving kitchens	159,127	231,740
Number of families assisted in improving furniture	335,803	317,694
Number of families assisted in screening	229,852	464,662
Number of families assisted in selection and use of electricity	85,323	170,146
Number of families using improved housekeeping methods	422,600	411,425

516,926 families reported using timely economic information in making buying decisions or other adjustments in families.

4-H Club members have been taught how to manage money through 4-H personal accounts. This program starting in 1933 with 13,718 club members reporting keeping records, and in 1946, 223,066 4-H boys and girls kept and analyzed their ways of using the money that came to them through their 4-H Club projects and other sources.

Field Studies: During the past year numerous field studies were requested by State and county extension workers. Among those completed are the following:

A study was made on a nation-wide scale of how the county home demonstration agent uses her time. The results have been used to increase the efficiency of agents in their use of time as well as to improve their training by providing instruction in important fields of work with rural women and girls.

A study was made of the home demonstration organization in Massachusetts and results were used as a guide in improving the organization structure in several states.

The results of a survey as to why farm women belong or do not belong to the Extension organization have been used to formulate a program that will more nearly meet the needs of farm women.

Many 4-H Club Members drop their membership when they start to high school. High school youth and the 4-H Club program was studied in Connecticut, Massachusetts, and Vermont. The results have been used in training local leaders in program building to meet the needs of youth of high school age.

Training Extension Workers:

Employed extension workers needing training in new techniques and subject-matter, or those recently employed were aided through 11 workshops attended

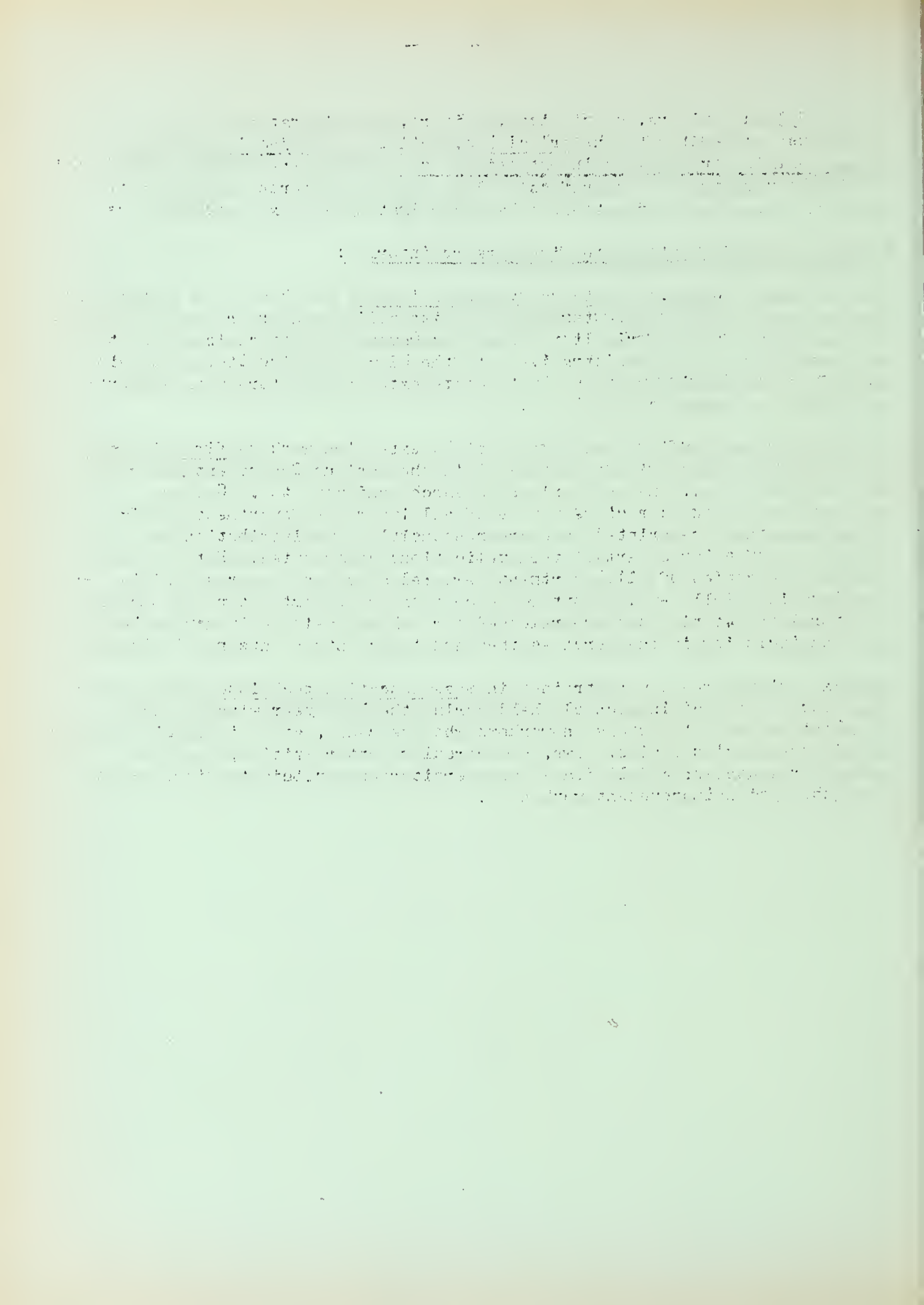
by 353 supervisors, specialists, editors, administrators, and leaders. These workshops dealt with the principles, philosophy, objectives and methods underlying or involved in extension work. Other extension workers desiring to improve themselves professionally were helped through 11 short time schools. These were attended by approximately 400 extension workers.

Keeping cooperative extension workers informed:

The more than 11,000 cooperative extension workers have been kept informed through weekly news letters dealing with policy and program announcements of the Secretary of Agriculture and other Government officials and sent on a spot-news basis administratively to the 48 cooperative State extension directors and informationally to State extension editors with supporting materials for educational use.

An important activity is getting field extension workers first information and otherwise helping them to explain the various Department programs (PMA, REA, SCS, etc., and the various research achievements). Cooperative extension workers recieve notice of all important Department publications before they are printed, and are responsible for distribution to farm people of a large part of the publications distributed. Extension editors recieve copies of all Department news releases, and are responsible for localized follow-up. About 90 percent of the Department radio farm flashes for local station use are released through extension editors for localizing and including in the services they and the county agents regularly release.

Extension workers were trained in mass education techniques through forty-four radio training schools held during the last year with nearly 1,000 State and county extension workers who use radio, attending. Similar schools in use of visual aids, news, and circular letter writing, were held in several States; and 18 States and Territories participated in two regional publication improvement workshops.



(c) Bankhead-Jones Act, Section 23, Title II (Act of June 29, 1935) as amended by the Act of June 6, 1945, Public Law 76

(Allotted to Federal Extension Service)

Allotment, 1948	$170,000
Budget estimate, 1949	170,000
Change, 1949	- -

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
Federal administration under Bankhead-Jones Act, section 23 title II	$170,000	$170,000	$170,000

Under the Act approved June 6, 1945, 2% of the amount appropriated thereunder is designated for paying the expenses of the Federal Extension Service. The Budget estimates for fiscal year 1949 include an amount of $8,500,000, of which the proportionate share for the Federal Extension Service is $170,000, the same amount as is available for the fiscal year 1948.

The statement of recent and current activities as discussed under the appropriation "Administration and Coordination of Extension Work" also applies to the work under this allotment. In addition, the funds are being used to expand and improve 4-H Club work with rural boys and girls, and work with older out-of-school youth; to develop more effective programs in nutrition, food conservation, and homemaking; to promote more efficient marketing and distribution of farm products; and to organize effective activities in connection with problems of rural health.

The authorization and appropriation applicable to this allotment to the Federal Extension Service are as follows:

	Authorization	Appropriation
1946	$90,000	$90,000
1947	170,000	170,000
1948	250,000	170,000
1949	250,000	170,000 (Budget estimate)

ITEMIZATION OF ESTIMATES

Appropriation: Bankhead-Jones Act, Section 23, Title II (Act of June 29, 1935) as Amended by the Act of June 6, 1945, Public Law 76 (Allotted to Federal Extension Service)

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Allotted from "Payments to States Hawaii, Alaska, and Puerto Rico for cooperative agricultural extension work"	$170,000	$170,000	- -
Total obligations	170,000	170,000	--

Obligations by Objects

Standard Classification			
01 Personal services	133,160	133,806	+646
02 Travel	24,000	24,000	- -
04 Commuuication services	1,000	1,000	- -
07 Other contractual services	9,000	8,354	-646
08 Supplies and materials	340	340	- -
09 Equipment	2,500	2,500	- -
Total available	170,000	170,000	---

(d) Cooperative Agricultural Extension Work
(Permanent Annual Smith-Lever Appropriation)

Permanent appropriation, 1948	$4,704,710
Budget estimate, 1949	4,704,710
Change, 1949	- -

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
Payments to States, Hawaii and Puerto Rico for cooperative agricultural extension work (Smith-Lever Act)	$4,704,710	$4,704,710	$4,704,710

This permanent specific appropriation for cooperative agricultural extension work was provided for under the Smith-Lever Act, approved May 8, 1914 (7 U.S.C. 341-343, 344-348), as amended by the extension of this Act to the Territory of Hawaii by the Act of May 16, 1928 (7 U.S.C. 386-386b) and to Puerto Rico by the Act of March 4, 1931 (7 U.S.C. 386d-386f). Under the provisions of these Acts $10,000 is appropriated annually to each State, Hawaii, and Puerto Rico without requirement of State or Territorial offset, and the remainder of the appropriation is distributed on the basis of rural population. The Smith-Lever Act is the basic act under which cooperative extension work is conducted by the Department and State colleges of agriculture. The general statement for cooperative extension work applies also to the work performed under this appropriation.

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Research and Marketing Act of 1946, Department of Agriculture (Extension Service): For service work on the distribution and marketing of agricultural products	--	226,000	a/
Farm and Other Private Forestry Cooperation, Department of Agriculture (Extension Service): Cooperation with States for extension activities in developing farm forestry under the —			
Norris-Doxey Act	36,868	40,577	40,577
Clarke-McNary Act, Section 5	59,726	65,766	65,766
Total, Farm and Other Private Forestry Cooperation	96,594	106,343	106,343
Administrative Expenses, Section 392, Agricultural Adjustment Act of 1938 (Extension Service): To provide technical assistance in connection with the agricultural conservation program in Alaska	660	1,000	1,000
Exportation and Domestic Consumption of Agricultural Commodities, Department of Agriculture (Extension Service): Special assistance on agricultural marketing agreement programs in connection with the requirements of the Production and Marketing Administration	5,664	--	--
Working Funds, Agriculture, Extension Service, (General Account) Advance from Treasury Department: Procurement Division, to conduct extension training program for Chinese agricultural technicians	5,039	--	--
Supply and Distribution of Farm Labor Mobilization of local labor under the Department's farm labor program b/	7,224,694	2,230,992	--
Cooperation with American Republics (Transfer to Agriculture) (Extension Service): Trainee program in agricultural and home economics extension work c/	34,810	10,096	12,719

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Miscellaneous contributed funds, Department of Agriculture (Allotted to Extension Service): For contributions toward cooperative work with land-grant colleges on appropriate in-service training activities through summer session courses for extension workers	- -	1,960	1,960
Penalty Mail Costs, Department of Agriculture (Allotment to Extension Service): For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress	725,120	1,000,000	1,075,000
TOTAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	8,092,581	3,576,391	1,197,022

a/ Allotments under this appropriation for the fiscal year 1949 have not been determined.

b/ Allotment from funds appropriated on a calendar year basis for the farm labor supply program in a separate act. Availability of present funds appropriated for this program is limited to January 30, 1948, at which time the program will terminate in accordance with Public Law 40, 80th Congress.

c/ Detailed schedule for this item appears in the State Department chapter of the Budget.

PENALTY MAIL ESTIMATE
Sqct.2, Public Law 364, 78th Congress
(Allotment to Extension Service)

	1947	1948	1949	Increase (+) or Decrease (-) 1949 over 1948
Category 1.....	$241,706	$333,000	$358,330	+25,330
Category 2.....	483,414	667,000	716,670	+49,670
Total.....	725,120	$1,000,000	$1,075,000	+75,000(1)

(1) An increase of $75,000 for the purpose of providing sufficient funds with which to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20.00 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

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Category 1 consists of bulletins, leaflets, publications, etc., issued by the Department and the State Colleges of Agriculture on such agricultural programs as production goals (milk production, poultry and eggs, etc.), farm labor, victory gardens, home food preservation, home safety and fire prevention instructions, soil conservation, and information on food production and related agricultural needs.

Category 2 consists of the following major items: (a) Circular letters to farmers, homemakers and 4-H Club members in furtherance of programs in agriculture and home economics, and giving information on improved methods of farming. (b) Post cards used for enrollment of 4-H Club members and for reporting results achieved by the approximately 1,800,000 4-H Club boys and girls. (c) 4-H Club record books for garden clubs, poultry clubs, clothing clubs, pig clubs, etc. (d) Circular letters of instructions, notices of meetings, etc., to the 1,100,000 volunteer local leaders who assist the county agents. (e) The general operations and business administration correspondence of the bureau.

Extension Service has at the present time over 3,000 mailing outlets and it is estimated that the minimum number of pieces to be mailed during 1949 will be approximately 53,750,000. This large volume of mail consists of notices to farmers, homemakers and boys and girls, of method and result demonstrations, meetings, exhibits, etc., forms and regulations in connection with various programs, bulletins and circulars to stimulate and assist farm people in furthering their programs in food production, preservation, and conservation, in the production of feeds and pastures, livestock, poultry and poultry products, in the production and management of cash crops, better marketing and distribution of farm products, in forest management, in home improvement, in nutrition, clothing, rural health and recreation, in improving farm and home buildings, and in community development and cooperative enterprises.

Applicability of Law to the Extension Service

The estimate covers the official mailings of the Federal Extension Service and the county extension agents, the county home demonstration agents, and other county extension employees, but does not cover the mailings of the State Extension Service Directors of the State Agricultural Colleges. This arises from the fact that Sections 2c and 2d of Public Law 364 require each Department, Agency and Independent Establishment to submit estimates for the cost of handling its penalty mail and to deposit in the general funds of the Treasury as Miscellaneous Receipts, amounts equivalent to such costs. The State Extension Service Directors are not a "Department, Agency, or Independent Establishment" of the Federal Government, and therefore are not subject to these sections of the Act. The State Directors are, however required to submit inventory reports of envelopes and other mailing materials to the Postmaster General under Sections 2a and 2b, which apply not only to each "Department, Agency and Independent Establishment" but also to "other organizations and persons."

The mailings of the county agents and other county employees are included in the estimate because they derive their authority to use penalty mail by virtue of being appointed collaborators of the Department of Agriculture, which makes them "officials of the Government" as used in the basic law for the use of the penalty privilege by Government departments (39 U.S.C.1940 edition, 321). The State Extension Directors, on the other hand, derive their authority to use the free penalty privilege from the Act of June 30, 1914 (39 U.S.C. 1940 edition, 330) which states the conditions under which they may use the penalty privilege.

AGRICULTURAL RESEARCH ADMINISTRATION
OFFICE OF ADMINISTRATOR

Appropriation Act, 1948	$481,500
Budget estimate, 1949	406,300
Decrease, 1949	-75,200

SUMMARY OF INCREASES AND DECREASES, 1949

Elimination of non-recurring items provided in 1948 Act for:	
Repair and improvement of facilities at the Agricultural Research Center	-54,200
Replacement of worn-out farm and other equipment	-35,000
Increase for repairs to certain service buildings at the Agricultural Research Center (non-recurring)	+14,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Administration and overall direction of Agricultural Research Administration	$145,868	$151,600	$151,600	- -
2. Supervision of maintenance, operation, and furnishing of facilities and services at the Agricultural Research Center	343,800	329,900	254,700	-$75,200(1)
3. Special exploratory investigations of agricultural problems of Alaska	12,455	- -	- -	- -
Unobligated balance	10,877	- -	- -	- -
Total available	513,000	481,500	406,300	-75,200
Available in prior year	+500	- -	- -	
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act costs)	-33,000	- -	- -	
Total appropriation or estimate	480,500	481,500	406,300	

INCREASES OR DECREASES

(1) The net decrease of $75,200 in this item for 1949 consists of the following:

(a) Decreases totaling $89,200 for non-recurring items provided in the 1948 Agricultural Appropriation Act for repair and improvement of facilities at the Agricultural Research Center, and replacement of worn-out farm and other equipment, as follows:

For repairs to sewage disposal plant and mains	-$7,300
For extension and improvement of coal handling facilities	-11,700
For reconstructing and resurfacing roads and installation of a mixing plant for bituminous road materials (non-recurring part of $46,000 item)	-35,200
For replacement of worn-out farm and other equipment .	-35,000
Total	-89,200

(b) An increase of $14,000 for repair of buildings maintained by the Office of Operations, Agricultural Research Center.

A normal program of maintenance for storage, shop, and other service buildings maintained by the Office of Operations could not be carried on during the war period, and increased operating costs since the close of hostilities have made it impossible to undertake a repair program. The backlog of painting and repair work which has accumulated cannot be done within existing funds without serious detriment to other essential activities. To reduce this backlog, an increase of $14,000 is requested, as follows:

Building Unit and Kind of Repair	Estimated Cost		
	Labor	Material	Total
Storage Buildings - 6			
Repair roofs and paint (last painted in 1941)	$2,100	$1,500	$3,600
Cafeteria Building			
Reshingle roof, repair window sash and frames, replace some logs, cresote outside walls ...	1,900	1,100	3,000
Machinery Storage Sheds - 3			
Install doors, repair roofs, paint (last painted in 1941)	2,000	1,400	3,400
Automotive Shops - 2			
Repair roofs	300	200	500
Mechanical Shop			
Repair roof and paint (last painted in 1942)	600	400	1,000
Warehouse			
Paint (erected in 1941 and never painted)	350	250	600

Building Unit and Kind of Repair	Estimated Cost Labor	Material	Total
Granary			
Paint (last painted in 1942)	450	350	800
Truck and Auto Sheds - 2			
Repair overhead doors and paint (last painted in 1942)	600	500	1,100
Total	8,300	5,700	14,000

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

Change No.

1 Salaries and expenses: For necessary expenses of the Office of Administrator, including the salary of the Administrator at $10,000 per annum, and personal services in the District of Columbia, and for the maintenance, operation, and furnishing of facilities and services at the Agricultural Research Center, [$481,500, and there shall be transferred to the Department, from Government surplus without reimbursement therefor, certain parcels of real property, valued at approximately $9,750, within the boundaries of the Agricultural Research Center, Beltsville, Maryland, consisting of approximately eighty-eight acres of land known as the Paul Hense tract and approximately forty acres of land known as the Sampson tract] $406,300: * * * Provided, however, That unless otherwise provided, the cost of constructing any one building (except headhouses connecting greenhouses) shall not exceed $5,000, the total amount for construction of buildings

2 costing more than $2,500 each shall be within the limits of the estimates submitted and approved therefor, and the cost of altering any one building during the fiscal year shall not exceed $2,500 or 2 per centum of the cost of the building as certified by the Research Administrator, whichever is greater.

The first change in language deletes a non-recurring provision authorizing transfer to the Department in 1948, from Government surplus without compensation, of two tracts of land within the confines of the Agricultural Research Center.

The second change in language inserts the word "than" which was inadvertently omitted when the 1948 Agricultural Appropriation Act was printed.

ITEMIZATION OF ESTIMATES

Appropriation: Salaries and Expenses, Office of Administrator, Agricultural Research Administration

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$481,500	$406,300	-$75,200
Reimbursements for services performed at the Agricultural Research Center for ARA bureaus and other agencies	1,596,000	1,506,000	-90,000
Total obligations (including reimbursements)	2,077,500	1,912,300	-165,200

Obligation by Objects

Standard Classification			
01 Personal services	$1,125,200	$1,067,800	-$57,400
02 Travel	4,100	4,100	- -
03 Transportation of things	2,300	2,300	- -
04 Communication services	25,300	25,300	- -
05 Rents and utility services ..	89,100	89,100	- -
07 Other contractual services ..	33,100	33,200	+100
08 Supplies and materials	741,200	658,900	-82,300
09 Equipment	57,200	31,600	-25,600
Grand total obligations ...	2,077,500	1,912,300	-165,200
Reimbursements for services performed	1,596,000	1,506,000	-90,000
Total available (exclusive of reimbursements)	481,500	406,300	-75,200

STATUS OF PROGRAM

Administration and over-all direction of the Agricultural Research Administration. The appropriation for the Office of Administrator, Agricultural Research Administration, provides for over-all direction and supervision of the Administration which comprises the Bureaus of Animal Industry; Dairy Industry; Plant Industry, Soils, and Agricultural Engineering; Entomology and Plant Quarantine; Agricultural and Industrial Chemistry; Human Nutrition and Home Economics, and the Office of Experiment Stations.

The Office of Administrator plans, develops, coordinates and directs the program of the Agricultural Research Administration to assure the most effective utilization of personnel and facilities. The Administrator is responsible for coordinating all research activities (other than economic research) of the various agencies of the Department; relating this research program with those going forward in private industry and in other Governmental agencies; and determining research objectives in the light of changing needs of agriculture and the Nation's requirements for food, feed, and fiber.

In addition to its research activities, the Administration seeks to control or eradicate animal and plant diseases and insect pests through quarantine and direct eradication measures. It also provides a Federal meat-inspection service to insure the wholesomeness of meat and meat food products.

The Administrator is responsible for general administration of the Special Research Fund (including supervision of the U.S. Plant, Soil, and Nutrition Laboratory, Ithaca, New York), and of research to develop domestic sources of natural rubber under the appropriation for research on strategic and critical agricultural materials. The Administrator also has direct supervision of the Agricultural Research Center, and the research program on agricultural problems of Alaska.

The Office of Administrator is the clearing agency for a wide variety of subjects involving many phases of technical, as well as budgetary, fiscal, and other administrative activities of the constituent research bureaus of the Administration.

The members of the staff consider and make recommendations concerning each proposed individual research project, each project estimate, and each proposed memorandum of understanding covering cooperative research between bureaus coordinated by the Administration, with other agencies of the Federal Government, and with the various States, and private organizations.

The Administration is cooperating with the Administrator of the Research and Marketing Act of 1946 in the development of a research program under that Act. The major part of the research under Title I is being conducted by agencies whose research is coordinated by the Research Administrator, and the new program greatly increases the coordination job.

The Chief of the Office of Experiment Stations has been designated an Assistant Research Administrator, thus facilitating closer and more effective coordination of the research being conducted in the State agricultural experiment stations with that of the Department.

The Administration is taking an active part in both the nutritional and the agricultural phases of the Food and Agriculture Organization program. The Administrator's Office has been represented at each FAO international conference, and has taken leadership in providing for Bureau participation in various conferences of specialists carried out under FAO, including particularly those on world nutrition requirements and storage losses from insect damage to food products. The Research Administrator is a member of the inter-agency committee which develops U.S. recommendations as to FAO policies and opportunities. He also is a member of the Mexican-United States Agricultural Commission.

The Office of Administrator has served as the agency through which the President's Scientific Research Board has made surveys of research and of scientific personnel problems in the Department of Agriculture as a part of their general study of the research activities of the Federal Government.

A member of the Administrator's staff serves on the Advisory Committee for Scientific Research of the Textile Foundation. The Administrator's Office is also represented on the Department Committee on Foreign Agricultural Policy.

Supervision of maintenance, operation, and furnishing of facilities and services at the Agricultural Research Center. These services and facilities include upkeep of Center grounds; furnishing guards and 24-hour telephone service; operation of mail and messenger service; infirmary and emergency first-aid service; fire protection; construction and maintenance of roads; operation of a sewage disposal plant and system; centralized purchasing of fuel, feed and other supplies; receiving numerous American and foreign visitors to the Center; and performance of administrative services in connection therewith.

Direct services are furnished on a reimbursable basis to ten bureaus of the Department and four other Government agencies conducting research and experimental work at the Center. These services include heat, electricity, gas and water; the maintenance, construction and repair of structures and equipment; mechanical shop service; engineering service; and general farm work and supplies as requested by the bureaus. This reimbursable work amounted to approximately $1,450,000 during the fiscal year 1947.

The sewage disposal plant treated approximately 134,000,000 gallons of sewage; 175,000,000 gallons of water were supplied through the water system; 6,711,000 kilowatt hours of electricity were purchased and distributed over the Center-owned power lines; the heating plants produced approximately 48,402,000 pounds of steam for heating and 12,403,000 pounds of processed steam for laboratories.

Basic grains and concentrates were purchased and 3,274 tons of poultry and livestock feeds processed according to experimental feeding formulas. Coal purchased and delivered to heating plants totaled 17,968 tons.

The engineering services unit did the planning, design, inspection, and related work incident to the construction of a water treatment plant, a new 4,100 ft. section of roadway to Greenbelt (Research Road), the partial erection and arrangement for completion by contract of approximately 2.6 miles of chain link boundary bence, the studies and preparation of specifications for contract construction of fire escapes on the four major buildings in the Department laboratory area, and for maintenance of Center roads. The mechanical shops received and completed 5,500 requests for service from the bureaus and the new water treatment plant was constructed by this unit. The farm operations unit preformed necessary farm and field work as requested by the research bureaus.

In addition to the regular program of maintenance and operation, current activities contemplate an extension of the coal handling facilities, the erection of a bituminous mixing plant, reconstructing and resurfacing 5.5 miles of road, and repairs to sewage disposal plant.

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Research and Marketing Act of 1946 (Office of Administrator, Agricultural Research Administration): Overall administration, planning, and coordination of research under sec. 10, Title I, Act of June 29, 1935, as amended ..	--	$40,000	--
Special Research Fund, Department of Agriculture, (Office of Administrator, Agricultural Research Administration): For laboratory for research into relation of soils to plant, animal, and human nutrition	$116,288	116,600	$116,600
Penalty Mail Costs, Department of Agriculture (Allotment to Office of Administrator, Agricultural Research Administration): For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress	221	400	430
Cooperation with the American Republics (Transfer to Agriculture) (Office of Administrator, Agricultural Research Administration): For assisting Latin and South American visitors and trainees interested in agricultural research a/ ..	--	6,500	9,464
TOTAL OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	116,509	163,500	126,494

a/ Schedule for this item appears in the State Department Chapter of the Budget.

PENALTY MAIL ESTIMATE
Sec. 2, Public Law 364, 78th Congress
(Allotment to Office of Administrator,
Agricultural Research Administration)

	1947	1948	1949	Increase (+) or decrease (-), 1949 over 1948
Category 1	$21	$40	$45	+$5
Category 2	200	360	385	+25
Total	221	400	430	+30 (1)

(1) The increase of $30 for 1949 is for the purpose of providing sufficient funds with which to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

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Category 1 consists of bulletins and circulars reporting the results of research mailed in response to requests for information on research problems which are received by the Office of Administrator.

Category 2 consists of administrative correspondence necessary for (a) carrying on the work of the Office of Administrator, involving the administration and direction of the Agricultural Research Administration which comprises the Bureau of Animal Industry; Bureau of Dairy Industry; Bureau of Plant Industry, Soils, and Agricultural Engineering; Bureau of Entomology and Plant Quarantine; Bureau of Agricultural and Industrial Chemistry; Bureau of Human Nutrition and Home Economics; and the Office of Experiment Stations; (b) conducting administrative operations at the Agricultural Research Center, particularly the mailing of business documents, such as purchase orders, contracts, and vouchers, in connection with the services and supply activities performed by the Center; and (c) conducting the research program of the Plant, Soil, and Nutrition Laboratory at Ithaca, New York, and that on agricultural problems of Alaska.

SPECIAL RESEARCH FUND, DEPARTMENT OF AGRICULTURE

Appropriation Act, 1948	$1,203,000
Budget estimate, 1949	1,230,000
Increase, 1949	+ 27,000

SUMMARY OF INCREASES AND DECREASES, 1949

For replacement of worn-out farm and other equipment at special research laboratories	+ $ 17,000
For construction of a seed and equipment storage building at the Soybean Laboratory	+ 5,000
For construction of an incinerator for disposing of carcasses at the Animal Disease Laboratory	+ 5,000
For construction of a building at the Poultry Laboratory to provide additional space for experimental birds needed in the breeding program	+ 23,000
Discontinuance of projects concerned with research on special problems basic to agriculture	- 23,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or Decrease
1. Special research laboratories in major agricultural regions	$ 781,929	$ 785,200	$ 835,200	+$50,000 (1)
2. Special research projects	482,526	393,800	370,000	- 23,000 (2)
3. Administration of payments to States under Title I, Bankhead-Jones Act	25,900	24,000	24,000	- -
Unobligated balance	5,011	- -	- -	- -
Total available	1,295,366	1,203,000	1,230,000	+ 27,000
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture"	- 102,366	- -	- -	
Total appropriation or estimate	1,193,000	1,203,000	1,230,000	

INCREASES OR DECREASES

A net increase of $27,000, composed of:

(1) An increase of $50,000 for special research regional laboratories, as follows:

(a) $17,000 for replacement of worn-out equipment.

During the war, expenditures for equipment at the special research regional laboratories were greatly curtailed, and since the close of hostilities the increased costs of other operating items have made it impossible to replace the backlog of worn-out equipment. The requested increase will provide only for replacing the most urgent equipment items in this backlog.

The situation is illustrated by a comparison of average obligations for equipment under the entire Special Research Fund for pre-war years and subsequent years, as follows:

Average annual obligations for equipment, fiscal years:

1939-1942, inclusive	$92,833
1943-1947, inclusive	29,294

Proper equipment is essential for effective conduct of the work at special research regional laboratories. The necessity for making frequent repairs to old equipment results in undue costs and in delays that hamper the research program.

The increase of $17,000 is estimated as follows:

Laboratory and Item	Year Item Being Replaced Was Obtained	Estimated Net Cost After Turn-in
Pasture Laboratory, State College, Pa.:		
1 Pick-up truck	1936	$ 800
1 Garden tractor, attachments	1937	300
		1,100
Soybean Laboratory		
4 Pick-up trucks (for use at Raleigh, N.C.; Ames, Iowa; Lafayette, Ind.; and Columbus, Ohio)	1936	3,300

	Year Item Being Replaced Was Obtained	Estimated Net Cost After Turn-in
Vegetable Laboratory, Charleston, S. C.		
1 1-1/2 ton truck	1936	1,900
1 Dump truck	1940	2,000
1 Pick-up truck	1940	900
1 Tractor, wheel type	1938	1,100
1 Tractor, track type	1936	3,200
1 Pump motor	1940	500
1 Heavy disk	1936	400
1 Seed drill, with fertilizer attachment	1936	325
6 Cultivators	1936	75
1 Compressor	1937	100
1 Refrigeration unit	1940	300
2 Crop dusters	1936	150
1 Sprayer	1938	450
1 Calculator	1937	500
1 Plow, tractor-type	1936	200
Irrigation pipe		500
		12,600

(b) $5,000 for a storage building at the Soybean Laboratory, Urbana, Illinois

The Soybean Laboratory has urgent need for a building estimated to cost $5,000 for storing seed of breeding stocks developed at the Laboratory, storing tools and equipment, and providing space for constant-temperature chambers and seed-cleaning machinery. It is planned that the building would be of knock-down steel construction, with dimensions 32 feet by 56 feet. The University of Illinois has expressed willingness to make land available for erection of this removable building, as well as necessary facilities.

At present, soybean seed stocks and equipment must be stored wherever space can be found on the South Farm of the Illinois Agricultural Experiment Station. This situation is unsatisfactory, and station officials have suggested several times that the Laboratory erect a storage building to meet its needs. Seed stocks now have to be removed from the various buildings in which they are stored to the chemical laboratory for weighing and packeting. This procedure is very undesirable to the proper functioning of the chemical laboratory as it is impossible to keep dirt from becoming a major problem.

Estimated costs of $3,500 for materials for this building and $1,500 for erection, grading, etc., are based on information supplied by the University of Illinois. As a building would be located on University land, construction would be accomplished by contract with the University.

(c) $5,000 for an incinerator at the Animal Disease Laboratory, Auburn, Alabama

Research at the Animal Disease Laboratory is concerned with infectious and parasitic diseases of cattle. At the present time there are no adequate means of disposing of carcasses of cattle and small animals infected with various diseases and parasites. Practically all available space for burial has been used. If not properly disposed of, the carcasses are a source of danger to livestock of the Laboratory and the State College.

The most effective means of disposing of diseased carcasses is by cremation, and an incinerator is urgently needed. The cost of an incinerator adequate to handle several large carcasses each week is estimated at $5,000, based on local building costs. It is planned that construction would be done by contract.

(d) $23,000 for a poultry house at the Poultry Laboratory, East Lansing, Michigan

A poultry house is required to provide additional space for experimental birds used in the breeding program to develop strains of poultry resistant to the disease avian lymphomatosis (fowl paralysis). This disease is the most serious one affecting the poultry industry, causing tremendous annual losses.

The Laboratory's breeding program has been exceptionally productive within the limitations of space available for maintaining breeding lines. Additional space is necessary in order to increase the number of breeding lines available for selection of resistant strains for release to poultrymen.

A one story building is planned, to consist of a center section 20' x 23', providing space for feed and records, and two wings, 26' x 65' each, for housing birds. The building, of cinderblock and frame construction, will be erected by contract.

It is proposed to continue the increase of $50,000 for special research laboratories in subsequent years to provide for improvement and maintenance of physical facilities, for replacement of worn-out equipment, and for operating costs in connection with certain phases of the research program, such as maintaining a larger number of breeding lines at the Poultry Laboratory, and accelerating the testing of inbred lines developed at the Swing Laboratory.

(2) A decrease of $23,000 for research projects, which will be met by discontinuing projects concerned with research on special agricultural problems.

CHANGE IN LANGUAGE

The estimates include proposed change in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

***of which amount [$785,200] $835,200 shall be available for the maintenance and operation of research laboratories and facilities in the major agricultural regions provided for by section 4 of said Act, including not to exceed $23,000 for construction of a poultry house at the regional poultry laboratory, East Lansing, Michigan.

This change in language inserts a provision for construction of a poultry house at the Poultry Laboratory, East Lansing, Michigan, to provide additional space for experimental birds used in the breeding program to develop strains of poultry resistant to the disease avian lymphomatosis (fowl paralysis).

ITEMIZATION OF ESTIMATES

Appropriation: Special Research Fund, Department of Agriculture

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimate, 1949	Increase(+) or Decrease(-)
Appropriation or estimate	$1,203,000	$1,230,000	+ $27,000
Total obligations	1,203,000	1,230,000	+ 27,000
Obligations by Objects			
Standard Classification			
01 Personal services	$ 982,500	$ 964,000	- $18,500
02 Travel	20,300	19,800	- 500
03 Transportation of things	3,900	3,900	- -
04 Communication services	2,900	2,900	- -
05 Rents and utility services	18,900	18,900	- -
06 Printing and binding	3,500	3,500	- -
07 Other contractual services	38,600	39,100	+ 500
08 Supplies and materials	110,000	107,400	- 2,600
09 Equipment	22,400	37,500	+ 15,100
10 Lands and structures	- -	33,000	+ 33,000
Grand total obligations	1,203,000	1,230,000	+ 27,000

STATUS OF PROGRAM

Section 4, title I, of the Bankhead-Jones Act (approved June 29, 1935) provides that the Special research fund shall be available for:

(a) the establishment and maintenance of research laboratories and facilities in major agricultural regions of the United States and the prosecution of research at such laboratories;
(b) special research projects approved by the Secretary of Agriculture and conducted by such agencies of the Department of Agriculture as the Secretary may designate or establish; and
(c) administration of provisions of the Act authorizing payments to States, Hawaii, Alaska, and Puerto Rico for research to be conducted by agricultural experiment stations.

Section 1 of the Act as reenacted by Section 10(d) of the Act of August 14, 1946, specifies that the work conducted under the Special Research Fund shall be "research into laws and principles underlying basic problems of agriculture in its broadest aspects; research relating to the improvement of the quality of, and the development of new and improved methods of production of, distribution of, and new and extended uses and markets for, agricultural commodities and byproducts and manufactures thereof; and research relating to the conservation, development, and use of land and water resources for agricultural purposes."

Special Research Laboratories in Major Agricultural Regions:

Nine regional laboratories have been established under the provisions of Sections 1 and 4 of the Bankhead-Jones Act of June 29, 1935, to provide a joint Department and State experiment station attack on problems of regional or national scope. These regional laboratories, which were established and are conducted in each case with the cooperation and participation of the State agricultural experiment stations in the respective regions, serve as focal centers for regional coordination and cooperation on research in the subjects under study by the laboratories. The work of the laboratories is centered especially upon phases of the problem under study which would be difficult or impossible for an individual State or a group of States to undertake.

The allotments made to Special Research Fund Regional Laboratories for the fiscal year 1947 and the estimated allotments for the fiscal years 1948 and 1949, are as follows:

Laboratory	Location	Allotment 1947	Estimated Allotment 1948	Estimated Allotment 1949
1. Regional Vegetable Breeding Laboratory	Charleston, S. C.	$ 76,000	$ 76,000	$ 88,600
2. Regional Pasture Research Laboratory	State College, Pa.	68,200	68,200	69,300
3. Regional Soybean Laboratory	Urbana, Illinois	96,900	96,900	105,200
4. Regional Swine Breeding Laboratory	Ames, Iowa	66,700	66,700	66,700
5. Regional Sheep Breeding Laboratory	Dubois, Idaho	66,000	66,000	66,000
6. Regional Animal Disease Laboratory	Auburn, Ala.	69,600	69,600	74,600
7. Regional Laboratory for Improvement of Viability in Poultry	East Lansing, Michigan	120,600	120,600	141,600
8. Regional Salinity Laboratory	Riverside, California	104,600	104,600	104,600
9. Regional Laboratory for Research into the Relation of Soils to Plant, Animal, and Human Nutrition	Ithaca, N. Y.	116,600	116,600	116,600
Total Available		785,200	785,200	835,200

The following are examples of progress made and work conducted at each of the laboratories during the fiscal year 1947:

Regional Vegetable Breeding Laboratory, located at Charleston, South Carolina:

General Objective: To obtain through fundamental research basic information prerequisite to efficient and orderly breeding of improved vegetables for the southeastern region; and to produce through selection and breeding, new and improved vegetable varieties and breeding stocks; to correlate this research as far as possible with State research; and to aid in insuring that the results may be of the greatest benefit to the agriculture of the region.

The form of male sterility found in a carrot plant in 1946 was proved to be an hereditary condition. By taking advantage of this discovery it may be possible to develop hybrid vigor in carrots so that larger yields of more uniform roots per acre will be produced.

Four outstanding lines of peas have been reported on favorably by cooperating state stations and seedsmen. These lines will be increased for further widely distributed tests and for possible release as varieties.

Six strains of snap beans, some of which are resistant to common bean mosaic, bacterial blight, and mildew, were sent to seedsmen and others for tests during the fiscal year 1947.

Several new lines of tomatoes are ready for commercial trials. During the course of these investigations stocks of tomatoes have been assembled that have separate resistance to eight important diseases. Progress is made each year toward combining as many of these desirable qualities into one type as possible. Some of the 1946 selections combine attractive commercial type fruits with some degree of resistance to collar rot, early blight, late blight, leafmold, and fusarium wilt.

Regional Pasture Research Laboratory, located at State College, Pennsylvania:

General Objective: To obtain through basic research facts and material applicable in pasture improvement throughout the Northeastern States. To relate this research to and coordinate it with other research in this region, conducted by various State agricultural experiment stations, which aims at the improvement and better management of pastures. To aid in the development of methods whereby the results and materials of this research may be fully utilized for the benefit of agriculture in the Northeastern States.

A regional test for determining the merit of breeding material was initiated during the fiscal year 1947. Clones of plant material were supplied to cooperating State agricultural experiment stations as follows: Massachusetts, 170 clones of bromegrass and 81 clones of orchard grass; New Jersey, 18 clones of orchard grass; New York, 173 clones of bromegrass, 284 clones of orchard grass, and 50 clones of Ladino clover; Rhode Island, 163 clones of orchard grass and 50 clones of Ladino clover.

A new strain of Kentucky bluegrass developed by the laboratory in cooperation with the Pennsylvania station has performed satisfactorily in comparative trials at other stations in the Northeastern region and is being included in varietal trials at a number of North Central agricultural experiment stations. Seed of the new strain is being increase by the laboratory.

An orchard grass - Ladino clover pasture, for the second successive year has outyielded Kentucky bluegrass - white clover, under comparable conditions, in pasture management experiments in which milking cows were used to measure the results. By proper grazing management, orchard grass - Ladino will produce satisfactory pasture during July and August, when bluegrass - white clover is usually unsatisfactory.

The results of pasture renovation experiments have been so striking that extension agronomists and others are actively encouraging farmers to improve their pastures by methods developed in this research.

A Kentucky strain of red clover (Kenland) was found, over a period of three years in a disease nursery, to be superior to most commercial strains of this crop in stand survival, disease resistance, and recovery following clipping.

Regional Soybean Laboratory, located at Urbana, Illinois:

General Objective: To obtain through fundamental research basic information prerequisite to efficient and orderly breeding of improved soybean varieties; to produce through breeding and selection improved varieties and strains of soybeans for industrial utilization; and to develop varieties of soybeans resistant to disease; and to correlate this research as far as practicable with the work of the State agricultural experiment stations in the region and to aid in insuring that the results of the research may be of greatest benefit to agriculture.

"Hawkeye", a new, early variety of soybean was named during the year. This new variety is more erect, yields more, and has a higher oil content than any other commercial variety of a similar maturity. It is adapted to the northern half of Ohio, Indiana, Illinois, and Iowa, one of the major soybean producing areas. From 15 bushels of seed planted in 1946, the laboratory and the cooperating state agricultural experiment stations have produced enough seed to grow 3,000 acres in 1947. This rate of increase will put Hawkeye into commercial production in 1948, only 10 years after the original cross was made. In the past many new crop varieties have required 15 to 20 years to reach this stage.

The Lincoln variety of soybean in 1946, four years after its release, produced over half the soybeans in the United States. In some of the major producing states as much as 75 percent of the soybean acreage is planted to the Lincoln variety. The additional oil produced by this variety, compared to the varieties it has replaced, is helping materially to relieve the present shortage of fats and oils.

The variety C. N. S. has been found, over a three-year period, to be resistant to the disease, bacterial pustule. Crosses have been made between this variety and locally adapted varieties in a program to produce disease resistant varieties. Preliminary results indicate that it will be possible to develop a variety for the Midwest with resistance to the bacterial pustule disease and with satisfactory agronomical and chemical characteristics.

Regional Swine Breeding Laboratory, located at Ames, Iowa.

General Objective: The improvement of swine through the application of breeding methods.

Cooperative breeding projects are being conducted at the Illinois, Indiana, Iowa, Minnesota, Missouri, Nebraska, Oklahoma and Wisconsin agricultural experiment stations. Projects coordinated with the basic project of the Laboratory are in progress at the Michigan, Ohio and South Dakota stations. The breeds of swine included in herds in the cooperative study are: Poland China, Duroc-Jersey, Hampshire, Danish-Landrace, Chester White, Minnesota No. 1, and Danish Landrace x Duroc-Jersey. Approximately 914 litters were produced in 1946 and a similar number are expected in 1947.

The Minnesota No. 1 breed, based on a foundation cross of the Danish-Landrace and Tamworth breeds is now used in approximately 80 farm herds. It is estimated that more than 800 boars of this breed were used in farm herds during the fall of 1946. Approximately 60,000 pigs marketed in 1947 will carry blood of the Minnesota No. 1 breed.

Farmers used about 150 boars of other lines in the laboratory program in the fall of 1946 and approximately 200 sows of various lines were supplied to farmers and other cooperators for trial during the year.

Inherently rapid deposition of fat and low feed requirements per unit of gain appear to be caused by the same genetic factors. There is also some evidence that the tendency for poor suckling ability in sows is caused by the same factors. Selection of future breeding animals at about four months of age, before heritable differences in fat depositions are fully expressed, tends to overcome the indirect selection for fatter carcasses that occurs when animals are chosen at later stages of development.

Inbreeding depresses the expression of functional characters such as productivity, survival, and rate of growth in swine. Single crosses of inbred lines usually restore losses in functional characters resulting from inbreeding. Crosses of three or more lines in some cases produce increases of as much as 150 percent for litter weights at six months of age over noninbred purebred swine. Inbred boars of selected lines have produced favorable results where comparisons have been made between litters by inbred and noninbred purebred boars. These increases are rather small, usually ranging up to 10 percent for weight of litters at six months of age. Boars produced by crossing two or more inbred lines may prove to be more valuable for crossing with outbred sows than are the inbred boars. Proper appraisal of these methods of breeding cannot be made until more extensive trials are completed.

Regional Sheep Breeding Laboratory, located at Dubois, Idaho.

General Objective: The development of sheep for western ranges superior in hardiness, yield and quality of wool and lambs produced.

A selection index based on correlations between various weanling traits of 2,183 range Rambouillet lambs has proven most valuable in selection of ram lambs for possible future use.

Size has been shown to have a pronounced influence upon scores for body type and condition. Weaning weight was found to be positively but not strongly related to length of staple and development of neck folds. The gentic correlation between staple length and neck folds was such that it gave factual evidence to the popular belief among sheep breeders that increased smoothness results in increased length of staple.

These correlations when properly tested under practical conditions will serve as a basis for guiding sheepmen in the selection of replacement rams and ewes for the improvement of their flocks.

Marked improvement has been made in methods for estimating semen quality and in predicting fetility of rams from semen quality. This information is greatly increasing the Laboratory's ability to select rams of high fertility.

Regional Animal Disease Laboratory, located at Auburn, Alabama.

General Objective: To develop methods of controlling certain diseases and parasites for which practical measures have not been devised.

Internal Parasites. Calves grazing for six weeks on pastures previously contaminated by cattle picked up more stomach worms than did lambs grazing simultaneously on the same pastures. When calves and lambs were grazed on pastures previously contaminated by sheep, the lambs picked up more stomach worms than did the calves. These results demonstrate that parasites are rather specific in their preference for animals. This finding refutes a long established belief that sheep cannot be raised in southern areas because cattle parasites have contaminated the pastures.

The use of phenothiazine as an anthelmintic was continued. The drug was given as a drench each month at the rate of 20 grams per 100 lbs. of liveweight. Over a period of 10 months, fecal examinations and postmortem findings revealed that of the two species most prevalent in the herd, the treatment controlled the stomach worm, Haemochus contortus, but did not materially reduce the number of intestinal roundworms, Cooperia punctata. In view of the fact that the latter species is quite harmful and of common occurrence, the need for development of effective medicinal or other control is indicated.

Bovine coccidiosis. Studies on the longevity of oocysts of bovine coccidia on plots from which infected calves had been removed, showed that normal appearing oocysts could be recovered as long as seven months after removal of the animals. The results demonstrate that deferred grazing alone cannot be depended upon to rid an infected area of coccidia.

A test and slaughter method of control and eradication of Johne's disease which includes removal of animals reacting to the diagnostic agent, johnin, from the herd, institution of sanitary measures on the farm, and raising the young stock away from the older animals is giving encouraging results in several herds in which owners are cooperating with the laboratory. Experiments show that considerable improvement is needed to make the diagnostic agent more specific in its reactions.

Regional Laboratory for Improvement of Viability in Poultry, located at East Lansing, Michigan.

General Objective: To determine the causative agent or agents responsible for lymphomatosis, to develop control procedures based on pathology, genetics, management, and nutrition, and to discover prophylactic techniques for prevention and control. This disease is one of the most serious diseases affecting poultry, and causes large annual losses.

Breeding for resistance to the disease has been quite successful. The mortality from lymphomatosis of the seven susceptible lines of 638 birds hatched in 1946 amounted to 27 percent at the time they were 300 days of age. During the same period the mortality of 490 birds of the seven resistant lines was 13 percent. Both the resistant and susceptible were hatched and raised together, so that other than breeding all birds were given the same opportunity to contract the disease. The information that selection for resistance can reduce mortality from lymphomatosis has been widely adopted by many of the most advanced pedigree breeders of chickens. Since such breeders produce and widely distribute hatching eggs, chicks and breeding stock, they have made a material contribution to the reduction in the general mortality from the disease.

Susceptible stocks of chickens in an isolated pen have remained free of the disease for over 1800 days. When representative brothers and sisters of these free chickens were placed with an infected population all of them died before 600 days of age, and 57 percent showed evidence of lymphomatosis in post mortem.

Tumors from certain cases of visceral lymphomatosis have been found to be transplantable. It was found that 12 of 16 tumors from cases of naturally occurring visceral lymphomatosis were successfully transplanted. From eight of these tumors cell suspensions were developed that have decreased the incubation period so that transfers could be made in 5 to 15 days and a high mortality of recipients

was obtained in 1 to 4 weeks. This development has materially speeded up the study of the visceral form of lymphomatosis.

Regional Salinity Laboratory, located at Riverside, California.

General Objective: To obtain through basic research information with respect to (1) the reactions of crop plants and the soil to the several salt constituents at various concentrations in both artificial and natural solutions; (2) the deleterious symptoms of crop plants resulting from these various salt constituents; (3) the amount of water which should be applied to soils to avoid harmful salt concentrations; (4) the trend of salinity conditions in several areas where such problems exist; and (5) the practical application of the laboratory findings on the reaction of crop plants under known and controlled field conditions.

Reclamation of alkali soils. Artificially alkalinized soil plots are being studied to determine if reclamation can be accomplished with economically feasible amounts of gypsum. Alfalfa was planted in the plots and preliminary results indicate (1) it is impossible to obtain a satisfactory stand on the alkali plots to which no gypsum was added; (2) yields of alfalfa under 4 and 22 tons per acre applications were not significantly different; (3) when gypsum was applied at the rate of 2 tons per acre yields were slightly greater under row applications than when broadcast; (4) all gypsum applications markedly increased the rate of infiltration of water; and (5) the presence of alfalfa improved soil structure and the infiltration rate of the soil.

A new method was developed by the Laboratory for artificially creating a saline or alkali soil for studying the salt tolerance of plants. Carefully prepared and leveled soil plots are basin-irrigated with water of the desired salinity. By this method, the soil plots can be brought to a rather uniform degree of salinity. Using the above method 15 legumes were tested in soil containing 0.2 percent sodium chloride on a dry soil basis. White sweet clover, Birdsfoot trefoil, and yellow sweet clover showed a very good salt tolerance, the white sweet clover being somewhat superior to the yellow. Hubam clover and Cicer milkvetch were fairly salt tolerant, but alsike clover, strawberry clover, Ladino clover, and White Dutch clover had poor salt tolerance.

Four common forage grasses were planted in large containers filled with soil variably adjusted as to salt content by six-inch layers from zero-salt in the surface layer to 0.25 percent in the bottom layer. Roots of these grasses penetrated to the bottom of check containers to which no salt had been added. Root development was sparse in the more saline layers of the experimental containers. Perennial rye grass showed the highest degree of development and smooth bromegrass the least.

U. S. Plant, Soil and Nutrition Laboratory, located at Ithaca, New York.

General Objective: To obtain through basic research facts regarding the effects upon plant nutrition of various mineral elements and growth factors in the soil and through plants used as food the effect of these elements and factors on animal and human nutrition.

Vitamin content of potatoes. In an effort to determine the influence of the top upon the Vitamin C content of the tubers of potatoes, plants were grown to a height of about 6 inches and reciprocal grafts made between varieties having tubers low in Vitamin C content and those having tubers high in this factor. Although differences in weight of tops and tubers resulted from this operation, the Vitamin C content of the tuber was not affected by the tops of the plants. Apparently Vitamin C content of potato tubers is regulated by factors directly influencing the tubers.

Effect of mineral elements on nutritive value of plants. In cooperation with the North Carolina Station studies are underway to determine the effect of phosphorus fertilization on the nutritive value of forages. The first trial in which soybean hay from differentially fetilized fields was fed to lambs indicated no significant differences in gain of weight nor in digestibility of hay.

Consumption of the soybean hay was not sufficient to permit a good gain in weight which may have obscured differences in the nutritive value of the hays. In a second trial the soybean hay was supplemented with a purified carbohydrate in order to more nearly satisfy the energy requirements of the lambs. In this trial there was a greater gain in weight in the animals receiving the forage from the phosphorus fertilized plots.

Special Research Projects:

During the twelve years that the Special Research Fund has been available, 113 separate research projects have been undertaken and 86, constituting 77 per cent, have been terminated. Of those, 38 were relatively short-time studies designed to provide information for immediate needs. Of the other 48 projects, 11 were terminated in 3 years, 8 in 4 years, 3 in 5 years, 7 in 6 years, 4 in 7 years, 6 in 8 years, 5 in 9 years, 1 in 10 years, 1 in 11 years, and 2 in 12 years. Seven projects were terminated in 1947. A total of 27 projects, involving 8 bureaus, is now underway.

The majority of these projects are concerned with fields of work basic to agriculture in its broadest aspects. As the work progresses and the needs vary, changes in emphasis are made from year to year. With the completion of one phase of a problem, the attack may be directed to another phase requiring solution.

The following are examples of progress made in Special Research projects during fiscal year 1947:

Effect of high pressures on enzymes of agricultural products. This work initiated during the fiscal year 1947 was designed to study the effects of high pressures on biological material. In some preliminary tests it was observed that raw rice (both freshly harvested and after commercial drying) turned rancid very much faster after being subjected to a pressure of about 2,000 lbs. per square inch for an hour. The rancidity developed in about 10 to 14 days at room temperature and at 30° C temperature. The samples that had been pressed were easily distinguished by their powerful rancid smell, and also by a more rapid increase in the free fatty acid of the rice oil.

To date the results are unexplainable. Rice processors in California called attention to the fact that rice at the bottom of a tall bin turns rancid faster than rice at the top. The calculated pressure on the grain in such a bin was much less than that required in the laboratory to cause rancidity. Furthermore, rice did not turn rancid when kept for two weeks under the pressure existing at the bottom of a 60 foot bin. The possibility that the impact of the grain when it falls from the top to the bottom of the bin produces momentarily a pressure sufficient to set the reactions of rancidity in motion. However, rice dropped 50 feet did not turn rancid any faster thereafter.

Explanation of the above observations may have a significant application to our present methods of threshing and handling grain.

Farm storage of soybeans. It has been established that the maximum initial moisture content of soybeans for safe storage is influenced by the expected length of storage and the purpose for which soybeans are held. Results show that 12 percent is about the maximum moisture content for safe storage when soybeans for commercial sale are to be stored for periods of one year or longer. Seed stocks containing up to 12 percent moisture can be stored in weather-tight storages in cool climates for 6 to 12 months with little loss of viability. However, where seed stocks are to be stored for periods longer than one year or for shorter periods where the temperature is above 75°F, it is desirable to have soybeans with initial moisture content around 9 percent.

Under present market premium and discount practices, soybeans with about 14 percent moisture net the most money to the producer. Soybeans with moisture content between 13 and 14 percent can generally be stored through the late fall and winter with little deterioration.

Studies of plant hormones. Complete control of quack grass and five other grass species has been obtained by applying isoprophyl-n-phenyl carbonate to the surface of the soil where grass seeds were planted. Control was effected when even as little as 1/2 pound per acre of the material was used. Experimental control has been obtained

of quack grass growing with onion, beet, spinach, and carrot seedlings without injury to the useful plants. This chemical gives promise of being useful in controlling weedy grasses in these and other crops.

The use of growth-regulating substances to retard the blossoming date of peach trees so as to lessen the damage of frost injury to them can not be recommended on the basis of results obtained over a five-year test period. The most effective treatments delayed opening of the blossoms only two days, and caused moderate to severe injury to leaves and branches as well as to the flowers. Other chemicals or methods of application may prove useful for this purpose.

It was discovered that thistle, dock, cocklebur, and other pasture weeds can be eliminated by applying a small amount of fertilizer containing about one percent of 2,4-D to the individual plants or patches. The 2,4-D is absorbed through the roots and translocated throughout the plant. The fertilizer stimulates growth and thus makes the weeds more susceptible to the herbicide. On the basis of findings in this study, a fertilizer company is marketing a mixture of fertilizer and 2,4-D for the control of broad-leaved weeds in the lawns.

Biologically active chemical compounds in growing plants. During the fiscal year 1947 efforts to isolate and characterize the antibiotic agent, "tomatin" were successful. The purified products have been produced in crystalline form.

Varying amounts of crystalline tomatin were incorporated in nutrient agar and slants prepared from the media were inoculated with 12 different organisms. Results of these tests indicated that pure tomatin is strongly fungistatic toward the organisms that are pathogenic in humans, less so toward Fusarium and Penicillium and practically ineffective toward bacteria. These results were in contrast to the effectiveness of the crude tomatin preparations previously tested, which were found to inhibit the growth of both fungus and bacteria. Further tests, however, showed that the antibiotic activity of pure tomatin, at least toward Fusarium, could be increased by the addition of the fraction of tomato leaf extract which remains after the removal of tomatin.

The above results suggest that there may be present in the tomato leaf extract substances, as yet unidentified, that are not themselves antibiotic but which are capable of acting in some manner to increase the antibiotic activity of pure tomatin.

The position of oil crops in American farming. The phenomenal expansion of acreage of such oil crops as soybeans, peanuts, and flaxseed to meet wartime requirements for fat and oils made it desirable to explore the position these crops might be expected to assume in a more nearly normal agricultural scheme.

Analysis of accumulated data indicates that under favorable economic conditions, the future competitive position of flaxseed and soybeans in American farming appears reasonably strong. The world's need for vegetable oils continues to increase with rising population and higher standards of living. It is likely that an increasing proportion of the total fats and oils supply will come from vegetable sources because of various limitations in the expansion of animal fats. Technological developments are increasing the range of substitution between different fats and oils for different uses. This seems to be particularly important in the case of soybeans.

Nearly double the present quantity of high protein feeds could be used to advantage in the United States, on the basis of recommended feeding standards. The residue from the extraction of oil from the above crops, as well as from cottonseed, furnish the bulk of the high protein feeds. New varieties and weed control of chemical methods are factors that will improve competitive position of flaxseed and will probably keep flaxseed acreage above prewar levels. Soybean acreage will probably be adjusted to avoid soil erosion and depletion. While these adjustments will involve some contraction of present acreage, production will be reduced less than acreage. High yielding varieties and better adapted soils will tend to keep the total production somewhere near the present level.

Administration of Payments to States under Title I, Bankhead-Jones Act. Title I of the Bankhead-Jones Act of June 29, 1935, makes available not to exceed two per cent of the Special Research Fund for administration of the payments to States authorized by the Act in accordance with established procedures for administration of such payments. Specific examples of the type of work done are given in statements under the subappropriation for administration of grants to States, Office of Experiment Stations.

Special Research Fund Authorizations and Appropriations

Fiscal Year	Appropriated				Total Authorized
	Regional Laboratories	Special Research Projects	Administration of Bankhead-Jones Payments to States	Total	
1936	$ 200,000	$ 192,000	$ 8,000	$ 400,000	$ 400,000
1937	400,000	384,000	16,000	800,000	800,000
1938	600,000	576,000	24,000	1,200,000	1,200,000
1939	700,000	672,000	28,000	1,400,000	1,600,000
1940	700,000	672,000	28,000	1,400,000	2,000,000
1941	700,000	672,000	28,000	1,400,000	2,000,000
1942	701,528	480,003	24,769	1,206,300	2,000,000
1943	700,000	427,000	23,000	1,150,000	2,000,000
1944	733,100	456,045	22,941	1,212,086	2,000,000
1945	742,315	461,108	22,941	1,226,364	2,000,000
1946	732,177	451,832	23,991	1,208,000	2,000,000
1947	782,845	486,621	25,900	1,295,366	2,000,000
*1948	785,200	393,800	24,000	1,203,000	2,000,000
*1949	835,200	370,800	24,000	1,230,000	2,000,000

* Estimated

PASSENGER MOTOR VEHICLES

Replacement. The estimate for the purchase of passenger motor vehicles for the Special Research Fund, Department of Agriculture, contemplates the replacement of one vehicle at an estimated net cost of $1,000 when exchange allowances are taken into account. The vehicle to be replaced was purchased in 1940 and at the time of trade in, the mileage will be approximately 73,000 miles. No funds are requested for purchase of additional vehicles.

Cars operated under the Special Research Fund are used only for essential research activities in areas where other means of transportation are inadequate or nonexistent. In some instances where common carrier travel is not suited to the work, employees are reimbursed at a rate not exceeding five cents per mile for the use of personally-owned automobiles. Travel of this sort, however, is a very small portion of the total.

RESEARCH ON STRATEGIC AND CRITICAL AGRICULTURAL MATERIALS

Appropriation Act, 1948	$349,000
Budget estimate, 1949	349,000
Change, 1949	- -

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
1. Research on domestic rubber crop production from guayule and other rubber plants	- -	$170,000	$170,000
2. Investigations of improved methods for extracting and processing rubber from guayule and other rubber plants	- -	179,000	179,000
Total appropriation or estimate	- -	a/ 349,000	349,000

a/ Excludes $408,429 distributed by projects in the budget schedules representing estimated value of supplies and equipment acquired without reimbursement from surplus during the fiscal year 1948 as authorized by the 1948 Agricultural Appropriation Act.

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

Change No.

1 For expenses necessary to enable the Secretary to carry out his responsibilities under section 7(b) of the Strategic and Critical Materials Stock Piling Act of July 23, 1946, in connection with natural rubber, including personal services in the District of Columbia, $349,000 [; and there shall be transferred to the Secretary, from Government surplus without compensation therefor, real property consisting of approximately one hundred and seventy-three acres known as the Spence tract, one hundred and thirty-one acres of the Guidotti tract, forty acres of the Arguelo tract, and twenty-five acres of the Alisal industrial site (all located in the vicinity of Salinas, California), including improvements and laboratory facilities and equipment thereon, and personal property, valued in all (procurement cost) at approximately $865,000].

This change deletes a non-recurring provision authorizing transfer to the Secretary of Agriculture, from Government surplus and without

compensation therefor, of real and personal property required for conduct of the research program on production, extracting, and processing rubber from guayule and other rubber-bearing plants.

ITEMIZATION OF ESTIMATES

Appropriation: Research on Strategic and Critical Agricultural Materials

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimate, 1949	Increase(+) or decrease(-)
Appropriation or estimate	$349,000	$349,000	- -
Total obligations	349,000	349,000	- -

Obligations by Objects

Standard Classification

01	Personal services	$251,700	$265,700	+$14,000
02	Travel	9,000	7,500	- 1,500
03	Transportation of things	4,500	2,700	- 1,800
04	Communication services	3,000	3,000	- -
05	Rents and utility services	19,000	19,000	- -
07	Other contractual services	15,500	15,500	- -
08	Supplies and materials	20,300	16,900	- 3,400
09	Equipment	26,000	18,700	- 7,300
	Grand total obligations	a/ 349,000	349,000	- -

a/ Surplus equipment valued at $408,429 acquired without reimbursement as shown in Budget Schedules under "Research on Strategic and Critical Agricultural Materials."

STATUS OF PROGRAM

The initial appropriation under this head was made in the 1948 Agricultural Appropriation Act, to provide for carrying out the Secretary's responsibilities, in connection with natural rubber, under Section 7(b) of the Strategic and Critical Materials Stock Piling Act of July 23, 1946. This Act authorizes and directs the Secretary of Agriculture to make "scientific, technologic, and economic investigations of the feasibility of developing domestic sources of supplies of any agricultural material determined pursuant to section 2 of this Act to be strategic and critical, or substitutes therefor."

The objective of the research program is to develop sources of natural rubber within the United States, with particular reference to methods capable of being expanded rapidly to meet emergency needs.

Headquarters for research on domestic rubber production and processing have been established at Salinas, California. A program of laboratory and greenhouse research is underway on factors affecting growth and rubber accumulation in guayule. Plantings have been made of wild and selected strains of guayule for comprehensive plant improvement studies. Plant improvement studies on kok-saghyz are underway in cooperation with the Oregon Agricultural Experiment Station. Investigations are being conducted in cooperation with Stanford University to determine hereditary factors which influence growth and rubber accumulation in guayule. In cooperation with the California Institute of Technology, studies are being made of the synthesis of rubber in plants. Nursery plantings have been established to produce plants for spring plantings for field studies of factors affecting rubber production in guayule.

Activities Receiving Emphasis at the Present Time Include:

1. Studies to determine the inheritance of apomixis (reproduction without fertilization). If this factor can be controlled, normal cross fertilization can be used in breeding superior varieties and the factor for reproduction without fertilization can then be introduced to facilitate preservation of the strain without intermixing with others.

2. Studies of the manner in which rubber is formed in plants to identify the substances involved in rubber formation and to determine factors which may be controlled to give greater or more rapid rubber accumulation.

3. Studies of plants to determine the portion of the plant most useful in rubber synthesis. This involves grafting tissue from rubber-bearing plants onto non-rubber-bearing plants or vice versa and observing the effect on rubber secretion. Thus it is possible to have roots, stems, and leafy portions from entirely different plants combined on a single plant, and to

observe the relative effect of leaf, stem, and root on rubber formation both in their own tissue and that of the other portions of the composite plant.

4. Growth control of guayule plants to determine the rubber formation during flowering as compared to rubber formation when flowering is controlled by picking off the flowers at varying stages of development.

5. Review and modification of analytical methods concerned with processing studies, and assembly of pilot plant equipment for processing research to develop methods of shrub preparation, retting, million, deresination, recovery of rubber, compounding, and other factors involved in obtaining rubber of high quality and adaptability from guayule and other rubber-bearing plants.

RESEARCH ON AGRICULTURAL PROBLEMS OF ALASKA

Appropriation Act, 1948	$144,940
Budget estimate, 1949	144,940
Change, 1949	- -

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or Decrease
1. Research on agricultural problems of Alaska	- -	$144,940	$144,940	- -
Transfers (shown in detail below)	- -	10,460	21,236	+$10,776
Total available	- -	155,400	166,176	+10,776
Transferred from:				
"Research and Marketing Act of 1946"	- -	-10,460	-20,920	
"Payments to States, Hawaii, and Puerto Rico, Agricultural Experiment Stations, Agricultural Research Administration"	- -	- -	- 316	
Total appropriation or estimate	- -	144,940	144,940	

Note: The increase of $10,776 in total estimated available for 1949 consists of an increment of $10,460 under the "Research and Marketing Act of 1946" otherwise allotable to Alaska but transferred to and made a part of this appropriation pursuant to provisions of the 1948 Agricultural Appropriation Act; and a similar increment of $316 under the increase proposed in the 1949 estimates for "Payments to States, Hawaii, and Puerto Rico, Agricultural Experiment Stations, Agricultural Research Administration."

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

> To enable the Secretary, through such officers and employees of the Department [of Agriculture] and the Territory of Alaska as he may designate, to [establish and maintain a] <u>continue the</u> program for research into the basic agricultural needs and problems of the Territory of Alaska <u>in</u>

accordance with the Department of Agriculture Appropriation Act, 1948, $144,940, including printing and binding, the employment of personal services in the District of Columbia, and the construction or acquisition of necessary buildings and facilities without regard to restrictions of existing law. In carrying out such program the Secretary is authorized to use such authorities as have heretofore been made available by the Legislature of the Territory of Alaska to the Agricultural Experiment Station of the University of Alaska, and by the laws of the United States, and to cooperate with the University of Alaska and with other public and private agencies. The provisions of this paragraph shall [be effective from and after the date of the enactment hereof,] continue in effect until June 30, 1949, and the Secretary is authorized to take such steps and to issue such regulations as he may determine to effectuate the orderly discharge of his responsibilities hereunder. [There are hereby transferred to the Secretary the use of such equipment and other facilities, buildings, and grounds of the Territorial agricultural experiment station, including its branches, as he may determine to be necessary, other than any land in general use heretofore for other university purposes, and the Secretary may to the extent deemed advisable continue the employment of the existing personnel of the station. Notwithstanding any other provision of law, including the laws of the Territory of Alaska, there are hereby transferred for the use of the Secretary any unexpended balances now available, and any moneys hereafter received for credit thereto, of all funds heretofore appropriated by the legislature or acquired under authority of law for the construction, use, and development of the Territorial agricultural experiment station, the availability of such funds to be unaffected by this transfer. The moneys so transferred shall be available for the settlement, in such manner as the Secretary shall direct, of obligations outstanding at the time of transfer.] The Secretary shall report annually to the Appropriations Committees of the Senate and of the House of Representatives respecting the status and progress of agricultural research in Alaska and the advisability of resumption by the Territory of the operation of the experiment station under the Land Grant College Acts.

These changes in language are proposed for the sole purpose of simplifying and shortening the wording of the item. They will not in any way affect the scope or character of the work being conducted under this item.

ITEMIZATION OF ESTIMATES

Appropriation: Research on Agricultural Problems of Alaska

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimate, 1949	Increase (+) or Decrease (-)
Appropriation or estimate	$144,940	$144,940	- -
Transferred from:			
"Research and Marketing Act of 1946, Department of Agriculture"	10,460	20,920	+$10,460
"Payments to States, Hawaii, and Puerto Rico, Agricultural Experiment Stations, Agricultural Research Administration"	- -	316	+316
Total available for obligation ...	155,400	166,176	+10,776

Obligations by Objects

Standard Classification

01	Personal services	$91,400	$118,876	+$27,476
02	Travel	10,000	10,000	- -
03	Transportation of things	2,000	2,000	- -
04	Communication services	1,000	1,200	+200
05	Rents and utility services	1,500	2,000	+500
06	Printing and binding	5,000	1,000	- 4,000
07	Other contractual services	7,000	5,000	- 2,000
08	Supplies and materials	4,000	5,000	+ 1,000
09	Equipment	17,500	9,500	- 8,000
10	Lands and structures	16,000	11,600	- 4,400
	Grand total obligations	155,400	166,176	+10,776

STATUS OF PROGRAM

This appropriation provides for research to develop basic information for establishment and maintenance of a permanent, efficient, and more nearly self-sustaining agricultural industry in Alaska. Such information is necessary to guide new settlements, to help gardeners and part-time gardener-farmers in the towns and villages as well as in the country, to provide a foundation for improving the living standards of the farmers in the Territory, and to furnish dependable local supplies of essential foods.

In accordance with the provisions of the 1948 Department of Agriculture Appropriation Act, the Department assumed the direction and operation of the Alaska Agricultural Experiment Station on July 30, 1947. A Director was appointed by the Secretary of Agriculture to be in immediate charge of all agricultural research activities in Alaska. Territorial station employees as of July 30 are being continued under similar terms of employment, under the supervision of the Director. Plans for the orderly transfer of the existing activities of the experiment station and its substations to the Department, and their later return to the Territorial authorities, when provided by law, have been effectuated through a cooperative memorandum of understanding and a nominal lease with the University of Alaska.

A dairy specialist and an agricultural engineer from the Department were assigned to temporary duty in Alaska in the fall and early winter of 1947 to assist the Director in developing research on dairy and agricultural engineering problems of the Territory. Certain phases of the dairy research conducted by the Territorial station are being continued and expanded. Plans for research in other fields are receiving careful attention, with emphasis on problems important under Alaskan conditions. Soils, crop, and livestock specialists are being recruited to proceed to Alaska at the beginning of the 1948 crop season. With Territorial funds that are available for buildings, it is planned to modify buildings at the Matanuska station to provide temporary laboratory facilities and two apartments for housing members of the technical staff.

The following lines of research are programmed for the fiscal year 1948:

Soils

1. Soil classification, mapping, and management requirements.

Field and Horticultural Crops

1. Testing cereal varieties for foundation seed production.
2. Pasture and range improvement and management.
3. Feed production, processing, and preservation.
4. Potato breeding.
5. Vegetable variety tests for processing and storage quality.
6. Fertilizer tests on growth and quality of vegetables.

Animal and Dairy Production

1. Raising dairy calves.
2. Effect of light on milk production.
3. Dairy cattle breeding.
4. Effect of increased light on health and egg production of poultry.
5. Effect of double additions of cod liver oil (vitamins) to standard concentrate feeds for laying hens during winter months.
6. Investigations of native Alaska fish feeds supplemented with low concentrate protein feeds.
7. Cross breeding of various fur bearers for hybrid vigor, mutation fixation, and fur quality.

Agricultural Engineering

1. Potato storage investigations.
2. Refrigeration research with blower type equipment to protect frozen foods from oxidation during refrigeration.

It is contemplated that additional research in these fields will be undertaken in future years, and that research also will be started on animal, plant, and human nutrition; vegetable and small fruit breeding; marketing and other phases of agricultural economics; livestock diseases; and forest diseases.

OFFICE OF EXPERIMENT STATIONS

Summary of Appropriations, 1948 and Estimates, 1949

Item	Total estimated available, 1948	Budget estimates, 1949	Increase (+) or decrease (-)
Payments to States:			
Hatch Act	$ 720,000	$ 720,000	--
Adams Act	720,000	720,000	--
Purnell Act	2,880,000	2,880,000	--
Bankhead-Jones Act	2,661,268	2,997,560	+ $336,292
Hawaii	90,000	90,000	--
Puerto Rico	90,000	90,000	--
Total, payments to States.	7,161,268	7,497,560	+ 336,292
Salaries and expenses:			
Administration of grants and coordination of research with States	211,000	197,000	- 14,000
Federal Experiment Station, Puerto Rico	114,700	124,700	+ 10,000
Total, salaries and expenses	325,700	321,700	- 4,000
Total, direct annual appropriation	7,486,968	7,819,260	+ 332,292

OFFICE OF EXPERIMENT STATIONS

(a) Payments to States, Hawaii, and Puerto Rico for Agricultural Experiment Stations

Appropriation Act, 1948	$7,161,268
Budget estimate, 1949	7,497,560
Increase, 1949 (authorized under title I of the Bankhead-Jones Act, approved June 29, 1935, to meet in part increased costs of labor, equipment, supplies, and maintenance in carrying out the research program at the State agricultural experiment stations)	+ 336,292

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Hatch Act (March 2, 1887)	$ 720,000	$ 720,000	$ 720,000	--
2. Adams Act (March 16, 1906)	720,000	720,000	720,000	--
3. Purnell Act (February 24, 1925)	2,880,000	2,880,000	2,880,000	--
4. Bankhead-Jones Act (June 29, 1935)	2,663,708	2,661,268	2,997,560	+ $336,292(1)
5. Hawaii Station Act (May 16, 1928)	90,000	90,000	90,000	--
6. Alaska Station Act (February 23, 1929)	15,000	--	--	--
7. Alaska Station Act (June 20, 1936)	27,500	--	--	--
8. Puerto Rico Station Act (March 4, 1931)	90,000	90,000	90,000	--
Total appropriation or estimate	7,206,208	7,161,268	7,497,560	336,292

INCREASE

(1) The increase of $336,292 is for the purpose of providing additional funds, authorized by the Bankhead-Jones Act, to meet increased costs of research at the State, Hawaii, and Puerto Rico agricultural experiment stations so as to assist the stations in returning to the level of operations and physical plant available prior to the war.

The experiment stations in each of the States, Hawaii, and Puerto Rico have been faced with unprecedented demands for research to improve methods, practices, and procedures in all fields of agriculture. Simultaneously, the costs of conducting research have reached an all time high. Greatly increased demands for food production not only during the war period but at the present time have emphasized the need for prompt solution of innumerable problems concerning the production of agricultural commodities through the conduct of research.

Despite the fact that there has been a steady increase in the complexity of problems presented to the stations by the farmers of the States, the purchasing power of the stations, and therefore the ability of the stations to attack such problems through use of these funds, has declined constantly since pre-war days. This is true for two major reasons: (1) Since 1941 the cost of conducting research has increased steadily. Wages, salaries, equipment, and supplies have all increased substantially in cost. It is estimated that this increase in cost equals at least 50 percent on a national level. This results in the stations being able to conduct a smaller volume of research than was previously possible. (2) During the war period the stations were unable to maintain physical plant at the pre-war level.

The backlog of physical plant rehabilitation and replacement is very substantial since it covers a period of five or six years. It will be difficult to overcome this backlog since replacements and repairs must be made at current high prices. However, unless the backlog is overcome, it will reduce further the physical facilities and equipment which will mean even greater reductions in the effectiveness of the research program.

The proposed increase of $336,292, even in combination with substantial increases in State appropriations for this purpose, will not meet the increased costs with which the stations are faced. The increase, however, will help considerably to maintain the current research program and will enable the replacement of much obsolete and worn out equipment essential to the current Bankhead-Jones research program.

The proposed increase is authorized by Title I of the Bankhead-Jones Act of June 29, 1935, which provides for an appropriation of $2,997,560 for the fiscal year 1949. The assistance to each of the States under this increase is shown on the following table:

TABLE I

ALLOTMENTS TO STATIONS UNDER THE BANKHEAD-JONES ACT OF JUNE 29, 1935, TITLE I, 1948, AND BUDGET ESTIMATE 1949

	Appropriated 1948	Estimate 1949	Increase
Alabama	$89,423.98	$100,738.23	$11,314.25
Alaska	a/	a/ 315,62	a/ 315,62
Arizona	14,392.26	16,253.80	1,861.54
Arkansas	69,148.00	77,832.33	8,684.33
California	88,718.14	100,193.21	11,475.07
Colorado	24,243.47	27,291.14	3,047.67
Connecticut	24,382.95	27,536.72	3,153.77
Delaware	5,622.44	6,349.66	727.22
Florida	37,680.70	42,554.44	4,873.74
Georgia	94,499.88	106,231.29	11,731.41
Hawaii	9,727.90	10,638.40	910.50
Idaho	15,404.82	17,397.33	1,992.51
Illinois	93,841.72	105,788.75	11,947.03
Indiana	68,142.18	76,955.90	8,813.72
Iowa	69,803.53	78,124.80	8,321.27
Kansas	53,614.75	59,607.11	5,992.36
Kentucky	88,327.80	99,752.39	11,424.59
Louisiana	61,211.39	69,128.66	7,917.27
Maine	22,408.10	25,293.40	2,885.30
Maryland	32,781.37	37,021.41	4,240.04
Massachusetts	20,231.15	22,847.91	2,616.76
Michigan	79,697.18	90,005.45	10,308.27
Minnesota	62,041.49	70,066.12	8,024.63
Mississippi	78,610.71	88,630.98	10,020.27
Missouri	83,175.72	93,614.07	10,438.35
Montana	16,687.31	18,678.42	1,991.11
Nebraska	41,505.16	46,093.12	4,587.96
Nevada	2,962.52	3,345.70	383.18
New Hampshire	9,216.35	10,408.42	1,192.07
New Jersey	33,865.35	38,245.59	4,380.24
New Mexico	15,725.69	17,759.70	2,034.01
New York	102,351,45	115,589.90	13,238.45
North Carolina	114,926.05	129,790.93	14,864.88
North Dakota	26,411.59	29,330.32	2,918.73
Ohio	101,527.46	114,659.33	13,131.87
Oklahoma	73,409.01	81,745.94	8,336.93
Oregon	24,689.53	27,882.95	3,193.42
Pennsylvania	146,599.59	165,561.23	18,961.64
Puerto Rico	57,647.71	65,104.04	7,456.33
Rhode Island	2,653.11	2,996.27	343.16
South Carolina	64,344.59	72,549.44	8,204.85
South Dakota	26,082.74	28,857.61	2,774.87
Tennessee	83,564.08	94,372.51	10,808.43
Texas	161,288.81	181,338.55	20,049.74
Utah	11,336.91	12,737.97	1,401.06
Vermont	11,274.80	12,625.36	1,350.56
Virginia	77,043.23	86,961.54	9,918.31
Washington	36,025.87	40,685.56	4,659.69
West Virginia	60,514.12	68,341.20	7,827.08
Wisconsin	65,188.75	73,535.25	8,346.50
Wyoming	7,294.44	8,193.88	899.44
	2,661,267.85	2,997,559.85	336,292.00

a/ In the 1948 Agricultural Appropriation Act, amounts of Federal-grant funds authorized for payment to the Alaska Agricultural Experiment Station were transferred to the appropriation item entitled "Research on agricultural problems of Alaska." Therefore, no Federal-grant funds are shown for Alaska except that portion of the proposed increase of $336,292 which is allocable to Alaska under the distribution formula of the Bankhead-Jones Act. This sum, $315.62, will be transferred to the appropriation "Research on Agricultural Problems of Alaska" under the language change explained below.

CHANGE IN LANGUAGE

The estimates include a proposed change in language as follows (deleted matter enclosed in brackets, new language underscored):

> For payments to the States, Hawaii, and Puerto Rico to be paid quarterly in advance, to carry into effect the provisions of the following Acts relating to agricultural experiment stations: * * * Bankhead-Jones Act, Title I of the Act approved June 29, 1935, (7 U.S.C. 427-427g), [$2,661,268, none of which shall be available for Alaska] $2,997,560, of which amount $316 shall be transferred to and made a part of the appropriation "Research on agricultural problems of Alaska", without matching requirement; * * *

The proposed change in language provides for the transfer of $316 to the appropriation "Research on agricultural problems of Alaska". This is the amount allottable to Alaska under the requested increase of $336,292 to complete the appropriation authorization of Section 5 of the Bankhead-Jones Act of June 29, 1935. In the 1948 Agricultural Appropriation Act, all Federal-grant funds formerly provided for Alaska under this appropriation were transferred to the new appropriation item for research on agricultural problems of Alaska. The proposed change in language would continue to make all funds otherwise allottable to Alaska available under the appropriation "Research on agricultural problems of Alaska."

STATUS OF PROGRAM

The demand for further application of the constructive progress made in agricultural research during the war and postwar period and the pressure of new problems continued to draw on the resources of the State agricultural experiment stations to the limit. The continued high level of farm production has been due in no small measure to the continued output of timely research information by the experiment stations. During the year each of the stations contributed important new information helpful in solving local problems and did its part, along with Federal agencies, in the attack on problems of regional and national significance.

Cumulative evidence gained by experiment station research workers shows beyond doubt, however, that sustained high production has resulted in alarming depletion and gradual breakdown of the essential physical and biological resources of the nation's farms. Whenever, for example, the yields of a crop plant are increased by an improved variety the material resources are depleted that much faster, and the soil, water, essential nutrients, and other elements entering into such increased yields must be compensated for or the productive capacity will eventually break down. The agricultural production situation emphasized as never before that fundamental research underlying all agricultural production can never be discontinued or even curtailed in small degree without incurring the risk of ultimate disaster. Much of the research of the experiment stations during the year therefore emphasized such objectives.

Wider recognition of the advantages to be gained by the pooling of research facilities and the development of cooperative studies by groups of stations and between the stations and the Department of Agriculture has resulted in increased use of this type of attack on problems of broad concern. The volume of this cooperative work is indicated by the 1,237 formal memoranda of understanding in effect between one or more stations and the Department during 1947. Investigational work at the stations during the year was carried on under a total of approximately 3,500 specific lines of research financed wholly or in part by Federal-grant funds and about 4,400 specific lines of research active under non-Federal funds available to the stations.

Viewed as a whole, the research program of the State agricultural experiment stations of necessity is comprehensive in scope, dealing with certain of the most critical aspects of practically every segment of agriculture.

The distribution of Federal-grant funds authorized by the Hatch, Adams, and Purnell Acts and Title I of the Bankhead-Jones Act during fiscal year 1947 is shown on the following table.

Distribution by State of Federal-Grant Funds Authorized by the Hatch, Adams, and Purnell Acts and Title I of the Bankhead-Jones Act
Fiscal Year 1947

State	Hatch Act	Adams Act	Purnell Act	Title I, Bankhead-Jones Act
Alabama	$ 15,000.00	$ 15,000.00	$ 60,000.00	$ 89,423.98
Alaska	15,000.00	7,500.00	20,000.00	2,440.15
Arizona	15,000.00	15,000.00	60,000.00	14,392.26
Arkansas	15,000.00	15,000.00	60,000.00	69,148.00
California	15,000.00	15,000.00	60,000.00	88,718.14
Colorado	15,000.00	15,000.00	60,000.00	24,243.47
Connecticut	15,000.00	15,000.00	60,000.00	24,382.95
Delaware	15,000.00	15,000.00	60,000.00	5,622.44
Florida	15,000.00	15,000.00	60,000.00	37,680.70
Georgia	15,000.00	15,000.00	60,000.00	94,499.88
Hawaii	15,000.00	15,000.00	60,000.00	9,727.90
Idaho	15,000.00	15,000.00	60,000.00	15,404.82
Illinois	15,000.00	15,000.00	60,000.00	93,841.72
Indiana	15,000.00	15,000.00	60,000.00	68,142.18
Iowa	15,000.00	15,000.00	60,000.00	69,803.53
Kansas	15,000.00	15,000.00	60,000.00	53,614.75
Kentucky	15,000.00	15,000.00	60,000.00	88,327.80
Louisiana	15,000.00	15,000.00	60,000.00	61,211.39
Maine	15,000.00	15,000.00	60,000.00	22,408.10
Maryland	15,000.00	15,000.00	60,000.00	32,781.37
Massachusetts	15,000.00	15,000.00	60,000.00	20,231.15
Michigan	15,000.00	15,000.00	60,000.00	79,697.18
Minnesota	15,000.00	15,000.00	60,000.00	62,041.49
Mississippi	15,000.00	15,000.00	60,000.00	78,610.71
Missouri	15,000.00	15,000.00	60,000.00	83,175.72
Montana	15,000.00	15,000.00	60,000.00	16,687.31
Nebraska	15,000.00	15,000.00	60,000.00	41,505.16
Nevada	15,000.00	15,000.00	60,000.00	2,962.52
New Hampshire	15,000.00	15,000.00	60,000.00	9,216.35
New Jersey	15,000.00	15,000.00	60,000.00	33,865.35
New Mexico	15,000.00	15,000.00	60,000.00	15,725.69
New York	15,000.00	15,000.00	60,000.00	102,351.45
North Carolina	15,000.00	15,000.00	60,000.00	114,926.05
North Dakota	15,000.00	15,000.00	60,000.00	26,411.59
Ohio	15,000.00	15,000.00	60,000.00	101,527.46
Oklahoma	15,000.00	15,000.00	60,000.00	73,409.01
Oregon	15,000.00	15,000.00	60,000.00	24,689.53
Pennsylvania	15,000.00	15,000.00	60,000.00	146,599.59
Puerto Rico	15,000.00	15,000.00	60,000.00	57,647.71
Rhode Island	15,000.00	15,000.00	60,000.00	2,653.11
South Carolina	15,000.00	15,000.00	60,000.00	64,344.59
South Dakota	15,000.00	15,000.00	60,000.00	26,082.74
Tennessee	15,000.00	15,000.00	60,000.00	83,564.08
Texas	15,000.00	15,000.00	60,000.00	161,288.81
Utah	15,000.00	15,000.00	60,000.00	11,336.91
Vermont	15,000.00	15,000.00	60,000.00	11,274.80
Virginia	15,000.00	15,000.00	60,000.00	77,043.23
Washington	15,000.00	15,000.00	60,000.00	36,025.87
West Virginia	15,000.00	15,000.00	60,000.00	60,514.12
Wisconsin	15,000.00	15,000.00	60,000.00	65,188.75
Wyoming	15,000.00	15,000.00	60,000.00	7,294.44
Total	$765,000.00	$757,500.00	$3,020,000.00	$2,663,708.00

Examples of Research Findings That Reached the Stage of Public Application During the Year:

Drying shelled corn (Indiana Station)--Through a detailed study of the many factors contributing to deterioration in quality in stored corn of high moisture content, the Indiana station has devised a practical method based on forced circulation of air whereby shelled corn of high moisture content, up to 28 percent, can be dried without mold damage when piled to depths up to eight feet in storage bins. Drying installations based on these results have been built by farmers and industrial concerns to control heavy annual corn losses.

Winter forage for beef cattle (Mississippi Station)--The production of improved winter grazing crops such as oats and winter peas or oats and crimson clover based on tests by the Mississippi station has important bearing on the establishment of a sound beef cattle industry in the South and the maximum use of forage crops in meeting the current emergency grain feed shortage. The ability of weanling beef-type calves to make substantial gains on such crops, without supplementary feed, over a five-month winter period was clearly demonstrated with net profits of $12 to $27 per acre from such winter grazing.

New oats (North Carolina Station)--Over a seven-year period the Lemont oats variety, developed by the North Carolina station and the Department, has had an 8-bushel lead on the next highest variety and has stood second in winter hardiness. In the Piedmont area, where most of North Carolina oats is grown and where Lemont is best adapted, its use promised to result in approximately one million bushels more of this grain per year.

Weed Control in Rice Fields (Louisiana Station)--Exhaustive laboratory and field studies by the Louisiana station of the physiological, chemical, and mechanical aspects of the control of major weeds in rice fields have resulted in the development of successful methods of control of three major weeds involving the use primarily of 2,4-D. The cost of treatment was approximately $3.50 per acre, accompanied by an average increase, however, of five barrels of grain per acre over untreated fields netting in 1946 an average profit of $36.50 per acre.

Air in the Soil Influences Crop Yield (Indiana Station)--Although it has been known for some time that soils with limited air supplies, even though fertile, fail to produce large yields, the real significance of air in the soil in relation to crop growth under field conditions is just becoming evident in certain areas. Studies by the Indiana station and the Department show that under conditions in muck soils where the oxygen penetrated to eighteen inches instead of four inches the yields of carrots rose from 3 to 33 tons per acre; of onions from 2,250 to 13,750 pounds; of sweet corn from 3 to 4.75 tons; of table beets from 3.75 to 13.5 tons; and of potatoes from 12 to 285 bushels per acre.

Potato Marketing (Maine Station)--The Maine station has collected information on the amount of bruising of potatoes resulting from various handling operations and how such injuries could be decreased. As a result of the study, the Maine Potato Growers, Inc., a large cooperative engaged in marketing potatoes, is collaborating with the Maine station in making changes in grading, storing, and handling practices that will lead to a better product.

Availability of Vitamins in Foods (Arizona and Iowa Stations)--Lately it has been found that the total quantity of vitamins present in a food is not necessarily a measure of the availability of such vitamins to the human or animal body. Recent work by the Arizona station has shown that in cantaloupe, the carotene is two times more available than it is in alfalfa and spinach, three times more than in carrots, and five times more than in apricots, sweetpotatoes, and turnip greens. Likewise, work at the Iowa station has shown that the riboflavin in ice cream is completely available to humans, whereas only half the total riboflavin present in fresh frozen peas and in almonds is assimilated. Studies of vitamin availability should lead to more adequate diets for people and livestock.

New Insecticide (Colorado Station)--DDT, the spectacular new insecticide, when applied to legume crops has a definite depressing effect on their nitrogen fixing capacity. The Colorado station has demonstrated that a closely related chemical compound designated as Colorado 9 is practically as effective an insecticide for many of the crop insects in that area and even when used at relatively high concentrations had no such depressing effect on the nitrogen intake of legumes.

New Raspberry (Washington Station)--Older varieties of raspberries grown in the Pacific Northwest such as Cuthbert suffer severely from winter injury and virus diseases, and the Washington station undertook the development of new varieties that would be adapted to the area and at the same time possess desirable quality. One variety, the Washington, proved outstanding--a measured acre yielding over nine tons of fruit as compared with four tons for Cuthbert, the leading older variety. Under 1946 prices of around $600 a ton, this meant an increase of about $3,000 in gross value per acre.

Celery Mosaic Disease Control (Florida Station)--Concentration of celery production in Florida has created an increasing disease problem. The Florida station found that weeds, particularly dayflower, were the chief source of mosaic, with the disease carried to celery by insects. Following this lead, a program of weed control around the seed bed area and in the fields was instituted by the Florida station in 1944 and in each succeeding year has been extended and intensified, including particularly, during the last two years, the use of 2,4-D sprays. Losses on a 200-acre farm were reduced by 2,4-D sprays to less than one percent. The results of the findings mean the salvation of celery production in the affected areas valued at close to fifteen million dollars in 1946.

Disease-Resistant Tobaccos (Wisconsin Station)--Tobacco is an important farm crop in Wisconsin. The general use of Havana 142, a new variety of tobacco highly resistant to black root rot, developed through twenty years of research at the Wisconsin station, has increased average yields to 1,450 pounds per acre, which, in 1946, gave an estimated increased value to growers of $3,400,000.

(b) Administration of Grants and Coordination of Research with States.

Appropriation Act, 1948	$211,000
Budget estimate, 1949	197,000
Decrease, 1949 (due to elimination of the non-recurring item provided in 1948 Act to overcome a backlog in important publications work)	-14,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Administration of Federal-grant funds for State and Territorial agricultural experiment stations; coordination of research work of the State and Territorial stations, and coordination of this research with that of the Department and administration of Department insular stations	$ 188,682	$ 211,000	$ 197,000	$-14,000 (1)
Unobligated balance	318	- -	- -	- -
Total available	189,000	211,000	197,000	-14,000
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture (for Pay Act Costs)	-16,000	- -	- -	- -
Total appropriation or estimate	173,000	211,000	197,000	

DECREASE

(1) The decrease of $14,000 is due to elimination of a non-recurring item included in the 1948 Act to enable the Office of Experiment Stations to overcome a backlog of publications work, principally indexes for Experiment Station Record.

ITEMIZATION OF ESTIMATES

Appropriation: Administration of Grants and Coordination of Research with States

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase(+) or decrease(-)
Appropriation or estimate	$ 211,000	$ 197,000	$ -14,000
Total obligations	211,000	197,000	-14,000
Obligations by Objects			
Standard Classification			
01 Personal services	183,095	183,000	- 95
02 Travel	8,725	8,700	- 25
03 Transportation of things	700	700	- -
04 Communication services	1,300	1,300	- -
07 Other contractual services	14,700	1,200	-13,500
08 Supplies and materials	850	800	- 50
09 Equipment	1,630	1,300	- 330
Grand total obligations	211,000	197,000	-14,000

STATUS OF PROGRAM

The Office of Experiment Stations has continued to carry out its two main functions during the year. These functions are (1) to represent the Department of Agriculture in the administration of the Federal-grant funds for research made available in accordance with the provisions of the Hatch, Adams, and Purnell Acts and the Hawaii, Alaska, and Puerto Rico Station Acts and (2) to administer the Federal Experiment Station in Puerto Rico and to coordinate the work of this station with that of the experiment station of the University of Puerto Rico, as required by law. The progress of research at this station is discussed in a separate statement under the Federal Experiment Station in Puerto Rico.

The primary function of administering Federal-grant funds for research has been the principal activity of the Office staff. During the year the Office has reviewed all project proposals for new investigations submitted by the 53 State experiment stations for conduct in whole or in part under Federal-grant funds, to determine appropriateness under the fund specified, to assure proper financing, to ascertain that the proposed project is technically sound, and to make certain that the project has taken full account of work previously performed and that it is properly coordinated with related work in progress either at other State stations or in the Department.

Examination of the work and expenditures of all stations, except Alaska and Hawaii, was conducted by the technical staff of the Office during the year. This examination covered all research in progress under the Federal-grant funds and review of all vouchers involving expenditures of Federal-grant funds. Conferences were held not only with station directors and department heads but also with individual project leaders. Progress, results, and future plans were discussed and suggestions offered as to the scope and scientific details of the projects and as to possible coordination with other research. In addition, written progress reports were secured and filed as a continuing record of research for reference use in possible further coordination. On the basis of these examinations, the Secretary was able to certify that the stations were entitled to receive their authorized allotments of Federal-grant funds during the fiscal year 1948.

The facilities of the Office have been taxed to the utmost during the year to keep pace with the task of establishing effective coordination of research at the State stations. Following a trend which became firmly entrenched during the war period, the State stations have continued to intensify their efforts to develop cooperative research projects extending beyond the borders of individual States in order to solve problems which cannot be answered readily by individual State action and to secure answers which have broad application. The result has been widespread reorganization and realignment of research programs. This readjustment of programs has resulted in increased workload within the Office both through review of proposals for research projects and also because of the very numerous requests for assistance from the States.

(c) Federal Experiment Station, Puerto Rico

Appropriation Act, 1948	$114,700
Budget estimate, 1949	124,700
Increase, 1949 (for essential repairs to buildings and facilities)	+10,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Federal Experiment Station, Puerto Rico	$ 176,933	$ 114,700	$ 124,700	$+10,000 (1)
Unobligated balance	267	- -	- -	- -
Total available	177,200	114,700	124,700	+10,000
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture", (for Pay Act Costs)	- 7,000	- -	- -	
Total appropriation or estimate	170,200	114,700	124,700	

INCREASE

Increase of $10,000 for repairs to buildings at the Federal Experiment Station in Puerto Rico:

(1) The roofs on three of the five wings of the main office and laboratory building are in very poor condition resulting in serious water damage to these portions of the building. On one of the wings, built in 1909, the roof is of native tile supported by wooden rafters. The wood support is termite infested to the point where the tiles have shifted permitting the torrential tropical rains to leak through into the entomology laboratories below. The other two wings requiring roof repairs were constructed in 1928 and are covered with flat built up roofing. Again, termite damage has caused sagging to the point where continued applications of hot asphalt, applied as an emergency measure, have not controlled the leaks. The seriousness of the situation can be judged by the fact that it is necessary to use tarpaulins in the rooms below these roofs during heavy rains to protect equipment and other property.

Roof repairs likewise are needed on the building now used as a garage and workshop. This was the first building constructed on the station grounds and is 192 feet long. Sixty feet of roof are in good condition over the portion of the building used for shop space. The roof covering the

remaining 132 feet of the building used for storage for cars, trucks, and for hand tools and for a garage is built of native tile over wooden supports which are now termite weakened.

In order to save interior space, the main office building was constructed with covered outside walkways rather than with interior corridors between different wings of the building. Roofs over these walkways are essential to protect the staff from heavy rains when going from one part of the building to another and to prevent rain from driving into open doorways and windows along the sides of the building. These roofs are constructed of tile over timber supports which have rotted to the point where they must be replaced to prevent injury to persons using the walkways from complete collapse of the roof or slipping of tiles.

All of the roofs mentioned are needed to prevent serious damage to buildings and to Government equipment, records, and other property. In addition, the tile roofs represent a hazard to personnel of the station. It is estimated that these old roofs can be replaced by reinforced concrete slabs, by corrugated iron painted with red lead and retiled, or by other tried and proven methods for $10,000.

ITEMIZATION OF ESTIMATES

Appropriation: Federal Experiment Station, Puerto Rico

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase(+) or decrease(-)
Appropriation or estimate	$ 114,700	$ 124,700	$+ 10,000
Total obligations	114,700	124,700	+ 10,000
Obligations by Objects			
Standard Classification			
01 Personal services	91,300	96,100	+ 4,800
02 Travel	2,200	2,000	- 200
03 Transportation of things	2,000	2,000	- -
04 Communication services	500	500	- -
05 Rents and utility services	1,500	1,500	- -
07 Other contractual services	1,700	1,800	+ 100
08 Supplies and materials	12,500	17,400	+ 4,900
09 Equipment	3,000	3,400	+ 400
Grand total obligations	114,700	124,700	+ 10,000

STATUS OF PROGRAM

Current Activities:

The Federal Experiment Station in Puerto Rico serves as an outpost of the Department of Agriculture in the field of tropical agriculture. All of the crops on which the station is working are of concern to the continental United States. Research investigations fall into two broad categories: (1) those dealing with crops of strategic or economic importance to the United States and (2) research on crops of value to the southern United States, conducted largely in cooperation with the other research bureaus of the Department. The Government of Puerto Rico has continued to supplement the work of the Federal Experiment Station by a small annual appropriation thus permitting close and active cooperation in research on local agricultural problems. This program has been concerned particularly with such crops as vanilla, bamboo, bay, and ginger.

The station program is divided into major lines of work as follows:

1. Insecticidal crop investigations.
2. Drug crop investigations.
3. Food crop investigations.
4. Plant introduction and propagation.
5. Control of insect pests and diseases.
6. Investigations on crops of local importance in cooperation with the Government of Puerto Rico and other agencies.

Typical Examples of Recent Progress:

Among recent accomplishments in which this station has participated are the following:

1. Since it was shown last year that the toxicity or killing power of insecticidal plant material could not be based on rotenone alone, a simple and rapid method for biologically assaying Derris and Lonchocarpus roots, using guppies as test animals was developed. Guppies offer considerable advantage as a test animal; rearing is comparatively simple, no special apparatus or technique is required, and results can be determined in a relatively short time. This method offers a quick and efficient method of evaluating insecticidal plant material.

2. A program testing and evaluating varieties of vegetables commonly grown in the southern United States, Puerto Rico, and Hawaii has resulted in an accumulation of data being prepared for publication on vegetable growing in the Tropics. It was found that cool night temperatures and dry days markedly improved vegetable cultivation. The extensive use of DDT in the control of pests has given excellent results.

3. Research on tropical kudzu, an outstanding legume, was continued. Promising results were obtained with experiments in which tropical kudzu was grown in combination with grasses. In all mixtures tried, higher yields of forage of greater nutritive value resulted. The nitrogen and protein content of the mixture was two to three times as great as when the grasses were grown alone. The feeding of this enriched forage mixture to livestock would reduce the need for expensive concentrates and would increase milk and meat production.

4. Experiments in weed control have shown that use of herbicides is far more effective and less expensive than hand hoeing. The two most satisfactory herbicides tested to date were Dow contact herbicides and an oil emulsion fortified with butyl phenol. Other weed control experiments indicated that combination sprays of 2,4-D plus Concentrate 40 and 2,4-D plus an oil emulsion fortified with Santophen 20 were more effective in combination than with the non-selective herbicide used alone.

5. A most important problem with bamboo has been the control of the bamboo powderpost beetle which renders native bamboo useless for industrial or commercial purposes. In tests conducted with such bamboo, it was found that the protection for a period of six months in insect-proof boxes gave permanent protection against further insect attack. An even simpler and more direct method of control was developed through the use of DDT. Bamboo treated with DDT had few, if any, entrance holes. No internal infestation developed where DDT was used and its use can be recommended as a permanent control of the bamboo powderpost beetle. Untreated bamboo was completely riddled and 100 percent infested.

6. A recent experiment producing vanilla under controlled conditions whereby proper light could be maintained and moisture supplied during drought periods has given outstanding results. The first year's flowering has been heavy and a substantial crop will be produced. Local interest in the method has been enthusiastic and one grower alone has invested more than $5,000 in setting up similar controlled conditions for the production of vanilla.

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

Item	Obligations, 1947	Estimated Obligations, 1948	Estimated Obligations, 1949
Research and Marketing Act of 1946, Department of Agriculture: Payments to States: For research into the basic laws and principles relating to agriculture in its broadest aspects conducted by the State agricultural experiment stations and administration of such research.....	--	$2,489,540	$4,979,080
Office of Experiment Stations Research at Federal Experiment Station, Puerto Rico, on erosion control (Title I, Sec. 10(b)).....	--	10,000	a/
Total, Research and Marketing Act of 1946..	--	2,499,540	a/ 4,979,080
Special Research Fund, Department of Agriculture, Office of Experiment Stations: For administration of payments to States for research under Title I of the Bankhead-Jones Act of June 29, 1935.....	$25,900	24,000	24,000
Working Fund, Agriculture, (Office of Experiment Stations)(Advance from Defense Supplies Corporation) Establishment of permanent source of high-yielding strains of Cinchona seed in Hawaii and Puerto Rico.....	2,867	--	--
Penalty Mail Costs, Department of Agriculture (Allotment to the Office of Experiment Stations): For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress.....	462	780	840
TOTAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS.....	29,229	2,524,320	5,003,920

a/ Allotments under this appropriation, other than for payments to States, for the fiscal year 1949 have not been determined.

PENALTY MAIL ESTIMATE

Sec. 2, Public Law 364, 78th Congress
(Allotment to Office of Experiment Stations)

	Actual 1947	Estimate 1948	Estimate 1949	Increase 1949 over 1948
Category 1	$300	$450	$450	--
Category 2	162	330	390	+ $60
	462	780	840	+ 60

The increase of $60 for 1949 is for the purpose of providing sufficient funds with which to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20.00 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

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Category 1 consists of publications sent to research workers in response to specific requests which include lists of the publications issued by the State agricultural experiment stations, "Experiment Station Record", and "Workers in Subjects Pertaining to Agriculture in Land Grant Colleges and Experiment Stations". Also included in this category are publications mailed by the Federal Experiment Station in Puerto Rico consisting of annual reports and current news bulletins and circulars which are of direct assistance in the improvement of tropical agriculture.

Category 2 consists of the administrative correspondence necessary for carrying on the work and operating functions of the Office; correspondence with the State agricultural experiment stations and correspondence required in connection with the supervision and operation of the Federal Experiment Station in Puerto Rico.

BUREAU OF ANIMAL INDUSTRY

Summary of Appropriations, 1948 and Estimates, 1949

Item	Total estimated available, 1948	Budget estimates, 1949	Increase (+) or decrease (-)
Salaries and expenses:			
Animal husbandry	$1,323,400	$1,405,500	+$82,100
Diseases of animals	1,045,000	1,055,000	+10,000
Eradicating tuberculosis and Bang's disease	6,750,000	6,250,000	-500,000
Inspection and quarantine	1,225,197	1,225,000	-197
Meat inspection	5,000,000	- -	-5,000,000
Virus Serum Toxin Act	315,000	365,000	+50,000
Total, salaries and expenses	15,658,597	10,300,500	-5,358,097
Marketing agreements, hog cholera virus and serum a/	[43,000]	[43,000]	- -
Eradication of foot-and-mouth and other contagious diseases of animals and poultry	b/ 5,100,000	c/	-5,100,000
Total, direct annual appropriation	20,758,597	10,300,500	-10,458,097

a/ Transfer from appropriation made by section 12(a) of the Agricultural Adjustment Act, approved May 12, 1933.

b/ In addition, the Supplemental Appropriation Act, 1948, authorizes the Secretary to transfer to this appropriation, from funds available to the bureaus, corporations, and agencies of the Department, amounts as are necessary for eradication of the foot-and-mouth disease.

c/ Pending the availability of information necessary to determine the requirements of this program in 1949, the Budget estimates propose to continue the authority mentioned in b/ above.

(a) Animal Husbandry

Appropriation Act, 1948	$1,305,500
Supplemental Appropriation Act, 1948 (to provide needed repairs and improvements to station facilities and replacement of worn-out equipment at Chinsegut Hill Sanctuary Station)	+17,900
Total available, 1948	1,323,400
Budget estimate, 1949	1,405,500
Increase, 1949	+82,100

SUMMARY OF INCREASES AND DECREASES, 1949

For repairs, reconditioning, and improvement of facilities at field stations	+211,500
Elimination of non-recurring items provided in 1948 Agricultural Appropriation Act:	
For repair, reconditioning and improvement of facilities at field stations	-100,000
For replacement of trucks at field stations	-11,500
For repairs to facilities and replacement of equipment at Chinsegut Hill Sanctuary Station	-17,900

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Swine husbandry investigations	$167,940	$172,541	$172,541	- -
2. Sheep and goat husbandry investigations	183,245	194,441	194,441	- -
3. Horse and mule husbandry investigations	47,338	49,565	49,565	- -
4. Beef cattle husbandry investigations	239,000	234,790	234,790	- -
5. Dual-purpose cattle husbandry investigations	78,264	76,398	76,398	- -
6. Poultry husbandry investigations	341,782	381,375	381,375	- -
7. Fur animal husbandry investigations	81,582	84,890	84,890	- -
8. Repairs, reconditioning, and improvements of facilities at field stations and replacement of worn-out equipment	- -	129,400	211,500	+82,100
Unobligated balance	9,806	- -	- -	- -
Total available	1,148,957	1,323,400	1,405,500	+82,100(1)

(Continued on next page)

Project	1947	1948 (estimated)	1949 (estimated)
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"..	/843	- -	- -
Transferred from:			
"Exportation and domestic consumption of agricultural commodities, Department of Agriculture"(for Pay Act Costs)	-7,100	- -	- -
"Salaries and expenses, Animal Industry, Agricultural Research Administration," eradicating tuberculosis and Bang's disease .	a/-101,200	- -	- -
"Salaries and expenses, Fish and Wildlife Service, Department of Interior"			
General administrative expenses	-900	- -	- -
Fur resources investigations ...	-74,700	- -	- -
Total appropriation or estimate	965,900	1,323,400	1,405,500

a/ Includes $86,500 for Pay Act Costs

INCREASES OR DECREASES

(1) The net increase of $82,100 in this item for 1949 consists of the following:

(a) An increase of $211,500 for repair, reconditioning and improvement of facilities at seven field stations:

The war years have left the physical facilities of the various animal husbandry field stations in dire need of major repair and reconditioning. During that period, it was impossible to maintain normal upkeep, due to shortages of materials, supplies, and labor. Moreover, all available funds were required to meet high wartime operating costs, and to carry out urgent wartime research projects. Such items as exterior and interior painting, carpenter repairs, fencing and roads, repairs to machinery,

refrigeration and heating equipment, renovation of water, irrigation and drainage systems, and similar items of physical plant repair and reconditioning were deferred. Need for such work has accumulated far beyond the reach of any one year's normal upkeep possibilities, and should not be put off longer in the best interests of economy and for efficient conduct of the animal husbandry research program. Funds are urgently needed for this work to protect valuable Government property and to prevent further deterioration.

In response to a similar request for funds for this purpose in last year's Budget, a sufficient appropriation was obtained to begin reduction of the large backlog of repair and improvement needs at the various field stations. It is essential that further funds be made available for other equally urgent items, as follows:

(1) Beltsville, Maryland ($109,500)

$55,000 for establishing an alternate pasture area for swine, including fencing, clearing, grading, terracing, seeding, houses and shelters, water system, service lanes, etc. This area is urgently needed to relieve serious congestion in the Beltsville swine research area which is endangering the Bureau's inbred and crossbred lines of Danish Landrace and domestic breeds essential to the research program. The present lack of pasture for rotation has produced diseases in an abnormal degree, which are difficult or impossible to control with resultant increase in variability of experimental pigs. This situation is limiting the rate of progress in achieving reliable research results. Experimental animals are being raised under conditions which would not be found on any well managed hog farm, and the Bureau is unable to follow the management and disease prevention practices which it advocates. Eighty-five acres are now available for use, but require clearing, grading, fencing, water systems, service lanes, houses and shelters. The development of more land will permit seeding an alternate permanent pasture, will avoid erosion, and eliminate heavy labor charges involved in growing temporary pastures.

$9,400 for repairs and alterations to the large animal building and attached small paddocks including carpentry, plumbing, cementing, electrical and painting work. Besides preservation of the building and its attachments, such work will correct troubles with storm drainage and sewer lines, wastage of heat during cold weather and assure safety of experimental animals as well as meet changing space requirements for animals in the experimental program. Included also are items for renovation, alteration and realignment of certain facilities in the large animal building dictated by new developments in experimental work. Serious retardation would result from failure to make such changes which include replacements in refrigeration equipment, rebuilding of pony and sheep digestion stalls, enlarging of feed bin capacity, truck facilities for manure disposal, replacement of old scales, etc.

$3,000 for urgently needed repairs to the station incinerator. This incinerator, which is used for disposal of waste material at the Meats Laboratory and for disposal of other station waste material, is in a very bad state of repair and has become dangerous to use due to loosening of concrete blocks in ceiling and walls. Accidents have also occurred due to the unsatisfactory unloading arrangements and conditions. To avoid further accidents of this nature, the incinerator should be provided with a lift to enable heavy materials to be transferred from trucks safely and efficiently.

$30,000 for the installation of a new general water system. Recent repair work to many of the pipes in the farm water system has brought to light the fact that due to the high acid content of the water, not enough thickness of pipe remains to cut and thread existing pipes for necessary repairs. Most of this pipe is at least 15 years old and some of it much older and could not be expected to last much longer with water of this type. A water conditioning plant is now being installed at the Agricultural Research Center which will remove the corrosive elements from the water and thus make the new water system requested last much longer than has been the case in the past.

$7,000 for exterior and interior painting of buildings, including the painting of the numerous frame swine and poultry colony houses.

$5,100 for replacement of completely worn-out stanchion and stall equipment in beef and dual-purpose cattle barns. The stanchions and stalls are so badly rusted and corroded that many have broken off completely and others are no longer strong enough to hold cattle safely. The interior equipment should be completely replaced in both barns to make them safe and satisfactory for continual use with cattle.

(2) Jeanerette, Louisiana ($14,000)

$4,000 for repair and painting of buildings, machinery and other physical facilities.

$4,000 for road surfacing and repair, especially service lanes through fields and paddocks now practically inaccessible in periods of prolonged bad weather; and fencing repairs and replacements.

$1,000 for construction of a wooden bridge over Grand Marais drainage area to make available additional pasture and crop land.

$5,000 for drainage of pasture and crop land around Grand Marais area.

(3) Middlebury, Vermont ($19,000)

$5,000 for repair and painting of buildings, machinery and other physical facilities.

$10,000 for clearing wood land, removal of stumps, and preparation and seeding of land for much-needed pasturage at the station.

$4,000 for fencing repairs and replacements and resurfacing and repairs to roads and service lanes.

(4) Miles City, Montana ($24,000)

$9,000 for repair and painting of buildings, machinery and other physical facilities.

$5,000 for fencing and road repairs.

$10,000 for the extension and development of suitable water system to pastures not now reached by water, including the development of wells and tanks.

(5) Dubois, Idaho ($33,000)

$9,000 for extension of drainage to the Modoc Range necessary to increase the production of range forage for the carrying of large bands of experimental sheep.

$9,000 for repair and painting of buildings, machinery and other physical facilities.

$15,000 for fencing repairs and replacements; and the extension of fences to protect the feed supplies of the various ranges from other livestock and permit the safer and more efficient management of the experimental flocks of the station.

(6) Saratoga Springs, New York ($7,000)

$7,000 for repair, and painting of buildings, machinery, and other physical facilities.

(7) Fontana, California ($5,000)

$5,000 for urgently needed repair and painting of buildings, machinery, and other physical facilities. The office building and superintendent's dwelling, in particular, are badly in need of repairs and painting.

(b) A decrease of $129,400 due to elimination of non-recurring items provided in the 1948 Agricultural Appropriation Act:

For repair, reconditioning and improvement of facilities at six field stations	$100,000
For replacement of trucks at field stations	11,500
For repairs and improvements to station facilities and replacement of worn out equipment at Chinsegut Hill Sanctuary Station, Brooksville, Fla.	17,900

ITEMIZATION OF ESTIMATES

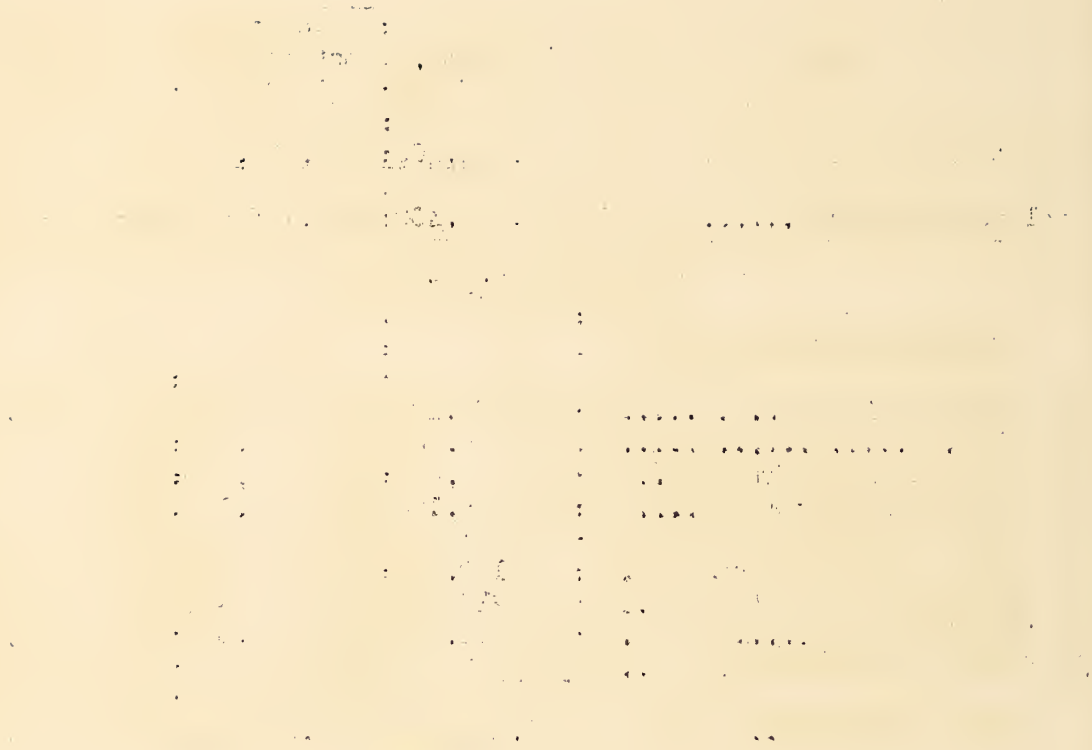
Appropriation: Animal Husbandry

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase(+) or decrease(-)
Appropriation or estimate	$1,323,400	$1,405,500	+$82,100
Total obligations	1,323,400	1,405,500	+ 82,100

Obligations by Objects

Standard Classification			
01 Personal services	$880,121	$920,547	+$40,426
02 Travel	26,000	26,000	- -
03 Transportation of things ...	5,000	5,000	- -
04 Communication services	6,100	6,100	- -
05 Rents and utility services .	31,500	31,500	- -
07 Other contractual services .	130,000	189,000	+ 59,000
08 Supplies and materials	217,279	215,353	- 1,926
09 Equipment	24,000	12,000	- 12,000
10 Lands and structures	3,400	- -	- 3,400
Total obligations	1,323,400	1,405,500	+ 82,100



STATUS OF PROGRAM

Current Activities: The program is conducted through field and laboratory investigations at federal field stations and in cooperation with state agricultural experiment stations, extension services, and other agencies of the government. The research program concerns all classes of farm livestock (except dairy cattle) including poultry and fur bearing animals.

The magnitude of the industry served is indicated by the fact that there are on American farms approximately 11 million horses and mules, 52 million cattle raised primarily for meat, 62 million hogs, 44 million sheep, 525 million chickens, 200,000 foxes, 450,000 minks and 2 million rabbits. Some of these animals are yielding returns considerably below production costs and only a very small percentage are showing the profits which easily could be realized by use of better breeding, feeding and management practices. Solution of the many critical problems will improve the economy of farm operations and lead to a more abundant supply of uniformly better animal products for the consumer. The following are examples of problems being studied in this field:

1. Improvement in breeding performance of both purebred stock and of grade stock used for market production.

2. Increasing production and improving product quality through use of improved rations and adequate supplementation.

3. Raising production levels through better management by development of more adequate equipment for housing livestock, by using methods for more efficient utilization and better conservation of range resources, and by using procedures which give better control of diseases and parasites.

4. Improvement in quality of animal products through application of results from evaluation of differences in meat quality, eggs, fibers, etc. to support breeding and nutrition programs designed to improve quality of animals and poultry.

5. Application of known facts in breeding and disease control and the collection of production data to assist breeders through the National Poultry and Turkey Improvement Plans.

Examples of Recent Progress. Among recent accomplishments in the cooperative research program are the following:

1. Development of inbred strains of swine from Danish-Landrace and American breeds. 55 boars and 30 gilts have been placed with breeders and the reports on their production performance are very favorable.

2. Crosses between inbred lines of pigs at Beltsville appear to show a degree of improvement in growth rate over that of random bred stock comparable to the improvement obtained with hybrid corn.

3. Feeding tests on value of protein supplements show that plant proteins alone are satisfactory for pregnant sows and older hogs but that some animal protein in the ration is necessary for best results with young pigs up to 75 pounds live weight.

4. Tests on the value of dehydrated legume hay meals for feeder pigs show that alfalfa hay meal producers the most rapid gains and most economical use of feed but dehydrated Kudzu and soybean meals were almost as good.

5. Breeding sheep for wool of specific types is helping sheepmen of the west to standardize wool production and increase the economic advantage of their whitefaced crossbred sheep. Progress is being made on this problem as shown by the fact that the young ewes of the Columbia and Targhee sheep at the Bureau's Dubois, Idaho station have more of their wool of a specific grade and type than their dams.

6. Soybeans as a temporary sheep pasture proved to be the best of the various crops tested at Beltsville, Maryland for carrying farm sheep through periods when permanent bluegrass pastures are scarce or in poor condition.

7. Expansion of Karakul lambskin fur production depends on a grading-up program of breeding. It has been shown that coarse-wooled ewes are the most efficient and economical for this purpose. In their order of superiority the breeds most useful are Navajo, Blackfaced Highland, and Corriedale.

8. Recent experiments in feeding horses show that the customary roughage feed level for mature working horses can be decreased as much as 80 percent. This result finds application near cities where hay production is limited and high in price.

9. Feedlot gains are hereditary to a high degree as shown by data from feeding tests on inbred herds of beef cattle at Miles City, Montana. This discovery is of fundamental importance to the development of herds possessing genetic superiority for growth rate.

10. Beef cattle tolerant to high temperature and humidity are being developed at Jeanerette, La. by crossing Aberdeen Angus and Brahman cattle. Calves carrying 1/2 Brahman breeding showed 60 pounds advantage in live weight over calves carrying 1/4 Brahman breeding at six months of age. It is concluded that approximately 1/2 Brahman breeding is necessary for optimum adaptability to hot climates.

11. Cooperative grazing experiments with range cattle at Woodward, Oklahoma show that continuous grazing at a moderate rate of stocking as compared with rotating from one pasture to another at monthly intervals results in greater yearling gains, maintains the vegetation in better condition and lowers production costs.

12. Phosphorus deficiency studies with range cattle in Texas show that adding measured quantities of disodium phosphate to the drinking water is the most economical and effective method of supplementation. Other tests show that feeding supplemental phosphorus prevents the formation of urinary calculi.

13. Feeding studies on forest lands of the Southeastern Coastal Plain show that a supplement of 2 pounds of peanut or cottonseed meal per head daily and the practice of controlled burning during favorable weather will maintain cows in good health and vigor during the winter and will not cause serious damage to young pine seedlings.

14. Comparison of different methods of poultry breeding for egg production at Beltsville, Md. show an advantage from crossing inbred lines of different breeds, viz.:

Breeding	Annual Egg Production
Inbred Rhode Island Reds	165
Inbred Single Comb White Leghorns	221.4
Standardbred White Leghorns	203.8
Standardbred Rhode Island Reds	183.8
Inbred Rhode Island Reds X Inbred White Leghorns	230.4
Inbred Rhode Island Reds X different lines of Inbred Rhode Island Reds	184.4
Two-way and three-way crossbreds among Rhode Island Reds, Light Sussex, White Leghorns, and Barred Rocks	189-216

15. Beltsville Small White turkey egg production for the period January 1 to June 1, 1947, the usual breeding period, has been increased through selective breeding to 80 eggs per bird. The national average for turkeys is approximately 40 eggs.

16. Studies on the properties of protein supplements for chickens have shown that:

(a) A previously reported unknown dietary factor found in fish meal and cow manure is absent in soybean meal and is required in increasing amounts as the quantity of soybean meal is increased in the ration.

(b) Chickens have been shown to be highly variable in their requirement for the unknown factor.

(c) A new test for the factor has been developed which more than doubles the output of information per unit of time, personnel and equipment.

(d) Meat meal is a very satisfactory supplement to soybean meal in the diet of growing turkeys.

17. Growth rate and efficiency of feed utilization in baby chicks has been shown to be greatly influenced by brooding temperature. A variation of 1°F from optimum temperature would, if projected over the United States as a whole, make a difference of approximately 3,000 tons of feed consumed annually by chicks between the ages of 1 day and 9 days.

18. Off flavor in eggs which is usually attributed to effects of cold storage or products of micro-organisms in the eggs has been shown to be caused also by such plants as wild garlic. The strong flavor appears within 3 or 4 days after the garlic is eaten by the hen and persists for as long as 20 days after the eggs are laid.

19. The source of bacterial infection of eggs is primarily through the shell. Experiments have shown that the rate of penetration depends upon temperature and prompt cooling of eggs prevents the trouble to a large extent.

20. The National Poultry Improvement Plan and the National Turkey Improvement Plan are voluntary programs administered cooperatively by the Bureau of Animal Industry and official state agencies. The status of the work is shown by the following table:

Item	1940	1946	1947
NATIONAL POULTRY IMPROVEMENT PLAN			
States	44	47	47
Hatcheries	2,192	3,952	4,498
Egg capacity of hatcheries	90,678,718	259,452,943	325,633,235
Hatching egg supply flocks	50,559	92,324	105,690 1/
Birds in breeding flocks	10,714,238	24,903,635	27,406,281 1/
Average percentage of reactors (first test)	3.09	1.84	1.82 1/
U.S.R.O.P. (U.S. Record of Performance) flocks	429	471	477
Birds entered in trapnest flocks	144,447	211,669	229,633
U.S.R.O.P. breeding pens	2,429	4,212	4,663
Females in U.S.R.O.P. pens	32,949	62,255	70,624
NATIONAL TURKEY IMPROVEMENT PLAN			
States	- -	30	45
Hatcheries	- -	505	735
Flocks	- -	4,317	2/
Birds	- -	2,342,133	2/
U.S.R.O.P. flocks	- -	37	52
Single-Tom matings	- -	266	417
Candidates trapped	- -	3,387	5,356

1/ Preliminary estimate complete

2/ Data not available

21. Nutrition experiments with foxes have determined that the vitamin A requirement of the fox pup is between 50 and 200 International Units. Loss of foxes being heavily fed fish has been shown to be due to a deficiency of vitamin B. The minimum calcium for normal growth of body and fur in foxes has been found to be 0.5 percent of the ration.

22. Animal protein is the most expensive ingredient of the ration for fur animals. Experiments with foxes and minks fed at various protein levels shows that the prevailing level of protein in fur animals is unnecessarily high. Application of this discovery should materially reduce the cost of fur production.

23. Efficiency of rabbit breeding has been increased by the discovery of a method for detecting pregnancy in does 14 days after mating. Non-pregnant does can be rebred at that time thus saving 14 days feed bill during a non-productive period.

24. Receipts: During the fiscal year 1947 approximately $123,422 from the sale of livestock and livestock products and agricultural products which have served their purpose for investigational work was deposited to the miscellaneous receipts fund of the Treasury.

(b) Diseases of Animals

Appropriation Act, 1948	$1,045,000
Budget estimate, 1949	1,055,000
Increase, 1949	+ 10,000

SUMMARY OF INCREASES AND DECREASES, 1949

For repairs, reconditioning, and improvement of facilities at the Agricultural Research Center for animal disease and zoological investigations (non-recurring)	+50,000
Elimination of non-recurring items provided for in 1948 Agricultural Appropriation Act for extension of steam heat from central heating plant to four principal laboratory buildings of the Bureau at the Agricultural Research Center	-40,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Investigations of brucellosis (contagious abortion) of livestock	$256,661	$320,622	$320,622	- -
2. Investigations of infectious diseases of livestock and poultry caused by bacteria and fungi, other than brucellosis	146,510	149,499	149,499	- -
3. Investigations of infectious diseases of livestock and poultry caused by viruses	123,847	150,266	150,266	- -
4. Investigations of non-infectious diseases of livestock and poultry	56,486	53,762	53,762	- -
5. Investigations of protozoan parasites of livestock and poultry including coccidiosis	78,813	82,939	82,939	- -
6. Investigations of worm parasites of livestock and poultry, such as tapeworms, flukes, and roundworms	83,850	78,139	78,139	- -
7. Investigations of miscellaneous parasites of livestock and poultry	49,506	52,245	52,245	

(Continued on next page)

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
8. Investigations of treatments for parasites of livestock and poultry	58,918	66,528	66,528	- -
9. Investigations of diseases and parasites of fur animals	48,474	51,000	51,000	- -
10. Construction of poultry and zoological laboratories	119,730	- -	- -	- -
11. Extension of steam heat from Central heating plant, Beltsville, to laboratories of Zoological Division	- -	40,000	- -	-40,000
12. Repairs, reconditioning and improvement of facilities at the Agricultural Research Center for animal disease and zoological investigations	- -	- -	50,000	+50,000
Unobligated balance	26,162	- -	- -	- -
Total available	1,048,957	1,045,000	1,055,000	+10,000(1)
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+43	- -	- -	
Transferred from: "Exportation and domestic consumption of agricultural commodities, Department of Agriculture"	-4,500	- -	- -	
"Salaries and expenses, Animal Industry, Agricultural Research Administration, eradicating tuberculosis and Bang's disease"	-114,500 a/	- -	- -	
"Salaries and expenses, Fish and Wildlife Service, Department of Interior":				
General administrative expenses	-600	- -	- -	
Fur resources investigations	-44,400	- -	- -	
Total appropriation or estimate	885,000	1,045,000	1,055,000	

a/ Includes $64,100 for Pay Act costs.

INCREASES OR DECREASES

(1) The net increase of $10,000 in this item for 1949 consists of the following:

(a) An increase of $50,000 (non-recurring) under project 12 for repairs, reconditioning and improvement of facilities at the Agricultural Research Center, as follows:

Animal disease investigations:

$10,000 for repairs and replacement of fencing. When the Animal Disease Station was moved in 1935 from Bethesda, Maryland to its present site at Beltsville, Maryland, wire fencing at the old station was dismantled and used in constructing fences for pens and fields at the new station. Salvageable cedar posts were likewise moved. The needs at the new station were supplemented by purchase of some new materials. Until the outbreak of the war, worn out fencing was replaced with new as needed. During the war, wire fencing and cedar posts were not available, with the result that about three-fourths of the present fencing is in a very unsatisfactory condition. On many occasions and especially at night when only the watchman is present, cattle have broken down a fence and roamed over the premises. On one occasion some normal control cattle contacted cattle affected with brucellosis, and later developed the disease, thus reducing the value of months of experimentation. Fencing is urgently needed for the protection of our experiments with large animals.

Zoological investigations:

$25,000 for painting and repairs to buildings and animal shelters and repairs to and replacement of fencing.

$3,000 for reconverting barn and 2 animal houses to original purpose. When the Washington staff was moved to Beltsville in 1942 it was necessary to convert the space to laboratories and offices. Space for this purpose will be available in the new laboratory now under construction. The barn and animal houses are badly needed for the research program.

$4,000 for resurfacing and repairing service roads.

$8,000 for field drainage, erosion correction and repairs to water system. The drainage sewers are either broken or filled with dirt to a point when they are no longer serviceable and must be replaced to make the areas usable and to prevent erosion which is rapidly ruining the plots and fields. Pipes now 15 years old have frequent breaks due to high acid content of water. There is not enough thickness remaining to cut and thread existing pipes for necessary repairs.

(b) A decrease of $40,000 under project 11 due to elimination of a non-recurring item provided in the 1948 Agricultural Appropriation Act for the extension of steam heat from the central heating plant at the Agricultural Research Center to the Zoological laboratories.

ITEMIZATION OF ESTIMATES

Appropriation: Diseases of Animals

Funds Available for Obligation

Item	Estimates 1948	Budget Estimates 1949	Increase(+) or Decrease(-)
Appropriation or estimate	$1,045,000	$1,055,000	+$10,000
Total obligations	1,045,000	1,055,000	+ 10,000
Obligations by Objects			
Standard Classification			
01 Personal services	$692,368	$705,103	+$12,735
02 Travel	16,000	16,000	- -
03 Transportation of things	2,100	2,100	- -
04 Communication services	2,100	2,100	- -
05 Rents and utility services	6,000	6,000	- -
07 Other contractual services	110,000	120,000	+ 10,000
08 Supplies and materials	204,932	192,197	- 12,735
09 Equipment	11,500	11,500	- -
Total obligations	1,045,000	1,055,000	+ 10,000

STATUS OF PROGRAM

Current Activities: An extensive research program on infectious, non-infectious and parasitic diseases of livestock and poultry is conducted through laboratory and field investigations in Washington, D. C. at Federal field stations, State experiment stations, and other agencies of the Government.

Infectious and non-infectious diseases are responsible for an annual loss in excess of 175 million dollars to livestock and poultry producers in this country. In addition, parasitic diseases are estimated conservatively to cause an annual loss in excess of 125 million dollars. The discoveries already made in the Department are saving producers millions of dollars annually. A notable recent contribution has been the discovery of strain 19 Brucella abortus, used widely in the production of antigen and vaccine for the field campaign for the eradication of brucellosis. The drug phenothiazine alone, discovered by Bureau parasitologists as a treatment for verminous diseases of domestic stock, is estimated as saving 10 million dollars annually to the livestock industry.

The program is designed to develop practical methods of control of diseases by:

1. Development of rapid, specific laboratory and field tests for precise diagnosis of those diseases for which none now exist and for increasing the accuracy of tests already in use.

2. Determination of the mode of transmission of external and internal parasites with the objective of breaking the life cycle at a vulnerable point.

3. Experimentation with chemicals, drugs and vaccinal agents for prevention and control, such as the various "sulfa" drugs, penicillin, and streptomycin.

4. Development of control procedures for diseases not responsive to medicinal or vaccinal treatment by application of herd and flock management procedures to prevent spread or perpetuation of diseases and parasites.

Examples of Recent Progress. Among recent accomplishments in the cooperative research program are the following:

1. Satisfactory method of shipment of strain 19 Brucella abortus vaccine to all parts of the United States and method of preparation of the culture will permit shipments to foreign countries.

2. Swine herds free from brucellosis may be developed by segregation of weanling pigs negative to the test for brucellosis, and disposal of the adult herd when marketable.

3. The effectiveness of penicillin in removing streptococcal infection from cows' udders (mastitis) is markedly increased by proper herd management and sanitary procedures. By laboratory tests of milk samples, following daily injections of the drug, the few animals not responding to treatment may be detected and removed, thus establishing a clean herd.

4. The skin in the neck region of a cow is more sensitive than other portions of the skin to allergens or test agents, such as tuberculin or johnin. This finding has been applied by the Beltsville Station to the detection of animals affected with bovine tuberculosis in herds in which difficulty has been experienced in eradicating the disease. This method of testing has been tried recently in known tuberculous herds in several States, and shows great promise in increasing the efficiency of the tuberculin test.

5. The successful control of the recent serious outbreak of swamp fever in horses at race tracks in New England was based essentially on measures developed by the Bureau and recommended as the soundest means of detecting infected animals, safely disposing of them and preventing the infection from being carried to the healthy animals. As a result of the carrying out of these measures, over 1,000 valuable race horses were found free from infection and released from quarantine.

6. Positive diagnosis of Newcastle disease is at present possible only by laboratory tests (serum-neutralization, hemagglutination-inhibition and virus isolation). Research by the Bureau has done much to bring about standard methods and simplifications so that most State laboratories can now carry out the tests satisfactorily in a routine manner.

7. Seven chemical agents have been found to provide effective and economical disinfectants for the control of Newcastle disease of poultry.

8. Recently the two fatal fungus diseases transmissible to man, namely, blastomycosis and histoplasmosis, were found in dogs from widely separated areas in the Southern States. The findings were published and the information thus made available to public health organizations concerned with the control of these diseases in people.

9. The disease of cattle known as bovine venereal trichomoniasis was transmitted experimentally by artificial insemination when semen from an infected bull was used. A medicament known as bovoflavin salve is being tested on 8 infected bulls with promising results.

10. Blackhead, the most fatal disease of turkeys, can be effectively controlled and perhaps eliminated by freeing the birds of cecal worms. Only 11 percent of one flock, treated for 4 years in succession for the removal of cecal worms, died, whereas 50 percent of the birds in another, untreated flock succumbed.

11. In investigations of sheep tapeworms in Beltsville, Md., lead arsenate in a 1-cc dose has been found effective. The parasites are transmitted by soil mites, the top layer of an acre of turf on a permanent pasture containing millions of these mites.

12. Experiments carried out in Beltsville showed that roundworms materially retard the growth of pigs, the rate of retardation varying directly with the numbers of parasites harbored. Work done in Beltsville, Md., and in the field during the year showed that dry, ground feed medicated with 1 percent sodium fluoride removes roundworms and promotes the health of pigs.

13. Investigations with pigs showed that infestation with nodular worms produces lack of appetite and progressive emaciation. The injuries are produced by larval worms which become embedded in the wall of the intestine.

14. In cooperation with the Georgia Coastal Plain Experiment Station, Tifton, Ga., it was found that heavy parasitic infestations retarded the growth of pigs. Parasitized pigs required on the average 0.8 pounds each more feed per pound of weight gain and were finished for market 5 weeks later than those not parasitized or only lightly parasitized.

15. Tapeworm cysts in beef that are transmissible to man were destroyed by heating the meat to temperatures of about 133° to 135°F. To provide a margin of safety a temperature of 140°F has been adopted as meeting the requirements for sterilizing beef to make it a safe human food.

16. In Colorado, experimental work on cattle grubs showed that after 2 years' successive treatment the infestation was reduced from an average of 17 grubs to 2.6 grubs per animal. In another group of cattle, the reduction after one season's treatment was from 10.5 to 3.4 grubs per animal.

17. A new treatment for the destruction of the spinose ear tick on cattle was developed and perfected. Its active ingredient is benzene hexachloride.

18. Dips containing 0.25 percent of DDT and an equal amount of benzene hexachloride were found effective in killing fever ticks. All ticks were dead 5 days after dipping and the dipped cattle were protected for 2 weeks against new infestations.

19. In 8 tests, involving 2,240 chickens, it was found that a liquid preparation of benzene hexachloride applied to henhouse roosts combatted heavy infestations of chicken lice, by virtue of the fumigant action of the chemical. Following exposure of the birds to the vapors of the chemical, no lice hatched from the nits during observation periods of 34 to 110 days.

20. Hexachlorethane, a synthetic chemical, was determined to be effective in removing stomach worms as well as liver flukes from cattle.

21. Experiments with toluene showed that this drug has marked promise of removing roundworms from chickens and pigs and hookworms from dogs. The toxicity of the drug to chickens and pigs still remains to be determined.

22. As a result of 5 years' work in Beltsville, Md., with a flock of crossbred ewes and lambs which had access to phenothiazine and salt at all times, it was determined that the program was beneficial in controlling parasites and in all other respects. There were fewer stillbirths in the flock during the 5-year period than in the years prior to institution of treatment.

23. At Fontana, California, coccidiosis--a disease of the liver and intestine of rabbits--was investigated. It was determined that coccidiosis is one of the important factors in the causation of bloat.

(c) Eradicating Tuberculosis and Bang's Disease

Appropriation Act, 1948	$6,750,000
Budget estimate, 1949	6,250,000
Decrease, 1949	-500,000

SUMMARY OF DECREASES

Decrease due to anticipated reduction of incidence of infection of tuberculosis in cattle	-125,000
Decrease due to inability to recruit sufficient veterinary force to carry on brucellosis eradication program in new areas	-375,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Eradicating tuberculosis in livestock (including poultry)	$1,719,334	$1,750,000	$1,625,000	-$125,000
2. Eradicating Bang's disease in cattle	4,401,903	4,958,000	4,625,000	-333,000
Transfer to "Salaries and expenses, Animal Industry, Agricultural Research Administration," meat inspection, for salaries for June 30, 1947, not chargeable to packers	- -	42,000	- -	-42,000
Unobligated balance	148,968	- -	- -	- -
Total available	6,270,205	6,750,000	6,250,000	(1)-500,000
Transferred to:				
"Salaries and expenses, Office of Information, Department of Agriculture"	+95	- -	- -	
"Salaries and expenses, Animal Industry, Agricultural Research Administration":				
Animal husbandry	101,200	- -	- -	
Diseases of animals	114,500	- -	- -	
Meat inspection	90,000	- -	- -	
Inspection and quarantine	134,000	- -	- -	
Virus Serum Toxin Act	40,000	- -	- -	
Total appropriation or estimate	6,750,000	6,750,000	6,250,000	

DECREASE

(1) The decrease of $500,000 in this item for 1949 consists of the following:

(a) Decrease of $125,000 due to anticipated reduction in incidence of infection of tuberculosis in cattle:

This decrease is composed of a decrease of $25,000 in operating costs and $100,000 in indemnities. The reaccreditation of all bovine tuberculosis areas now overdue for testing should be accomplished in the fiscal year 1949. An appreciable reduction of infection is expected to be disclosed as compared with the rate of 0.2 percent in the fiscal year 1947. This anticipated reduction in infection should result in about 4,000 less reactors.

(b) Decrease of $375,000 due to inability to obtain sufficient veterinarians to carry on brucellosis (Bang's disease) eradication program in new areas:

This decrease is composed of a decrease of $75,000 in operating costs and $300,000 in indemnities. Because of inability to obtain a sufficient number of veterinarians for entering into large-scale eradication in new areas, most work will consist of retesting in areas where there is a lower incidence of infection and where active efforts toward accreditation are being made. Because of the extremely high prices of cattle and dairy products, it is quite likely that farmers in the large milk shed areas, where the heaviest infection usually exists, will be hesitant to submit these herds for test until the present critical herd replacement problem is relieved. In view of these considerations it is probable that there will be approximately 15,000 less reactors.

Resume of Financing and 1948 Allotment:

Tuberculosis eradication has been in progress since 1917. During the fiscal years 1935 to 1938, inclusive, regular and special funds (Jones-Connally and Section 37, Act of August 24, 1935) were used for this purpose. Bang's disease eradication was inaugurated in the fiscal year 1935, and this work was financed exclusively with special funds through the fiscal year 1938. Since 1939, the Agricultural Appropriation Act has provided for continuation of tuberculosis and Bang's disease eradication under one consolidated appropriation item entitled "Eradicating tuberculosis and Bang's disease."

Table I, which follows, shows the direct appropriations, reappropriations of regular and special funds, and net availability under the consolidated item.

TABLE I

Statment of Direct Appropriations, Reappropriations of Regular and Special Funds, and Net Availability under "Eradicating Tuberculosis and Bang's Disease." Fiscal Years 1939-1949

Fiscal Year	Direct appropriation	Reappropriation	Total appropriation	Amount reappropriated in subsequent years	Net availability
1939	$5,403,000	1/ $7,827,000	$13,230,000	$4,000,000	$9,230,000
1940	8,300,000	1/ 4,000,000	12,300,000	5,450,000	6,850,000
1941	4,300,000	1/ 4,000,000	8,300,000	750,000	7,550,000
1942	5,598,140	2/ 750,000	6,348,140	- -	6,348,140
1943	3,575,669	3/ 2,463,331	6,039,000	800,000	5,239,000
1944	5,983,800	- -	5,983,800	343,959	5,639,841
1945	5,433,232	4/ 343,959	5,777,191	- -	5,777,191
1946	5,478,000	5/ 800,000	6,278,000	- -	6,278,000
1947	6,750,000	- -	6,750,000	- -	6,750,000
1948	6,750,000	- -	6,750,000	- -	6,750,000
1949 est	6,250,000	- -	6,250,000	- -	6,250,000

1/ Estimated unexpended balance of special funds (Jones-Connally and Section 37, Act of August 24, 1935).
2/ Unobligated balance of 1941 funds under this head.
3/ $1,450,000 unobligated balance of 1940 funds under this head and $1,013,331 unexpended balances of appropriations heretofore made for "Eradication of Foot-and-Mouth and Other Contagious Diseases of Animals".
4/ Unobligated balance of 1944 funds under this head.
5/ Unobligated balance of 1943 funds under this head.

Table II, which follows, shows by States and territories the allotments of funds for tuberculosis and Bang's disease during the fiscal year 1948:

TABLE II

Eradicating Tuberculosis and Bang's Disease

1948 Allotments

State	Eradicating tuberculosis		Eradicating Bang's disease		Total
	Salaries and expenses	Indemnities	Salaries and expenses	Indemnities	
Alabama	$34,000	$1,000	$86,500	$25,000	$146,500
Arizona	2,000	2,000	35,000	6,000	45,000
Arkansas	10,000	0	75,000	0	85,000
California	100,000	35,000	23,500	0	158,500
Colorado	11,000	2,000	35,000	0	48,000
Connecticut	29,000	11,000	5,000	10,000	55,000
Delaware	6,000	4,000	12,000	8,000	30,000
District of Columbia	50,000	0	233,900	0	283,900
Florida	21,000	1,000	78,000	10,000	110,000
Georgia	8,000	1,000	90,000	10,000	109,000
Idaho	14,000	1,000	40,000	20,000	75,000
Illinois	33,000	27,000	96,000	0	156,000
Indiana	34,000	8,000	26,000	120,000	188,000
Iowa	38,000	37,000	135,000	95,000	305,000
Kansas	50,000	15,000	57,000	3,000	125,000
Kentucky	14,000	1,000	42,000	11,000	68,000
Louisiana	9,000	1,000	55,000	10,000	75,000
Maine	11,000	4,000	50,000	75,000	140,000
Maryland	42,000	8,000	105,600	40,000	195,600
Massachusetts	31,000	14,000	0	0	45,000
Michigan	27,000	8,000	105,000	25,000	165,000
Minnesota	35,000	5,000	162,000	130,000	332,000
Mississippi	24,500	500	65,000	35,000	125,000
Missouri	21,000	1,000	95,000	25,000	142,000
Montana	33,000	1,000	15,500	4,000	53,500
Nebraska	28,000	2,000	17,500	5,000	52,500
Nevada	12,000	1,000	12,000	0	25,000
New Hampshire	13,000	2,000	35,000	125,000	175,000
New Jersey	23,000	24,000	16,500	8,000	71,500
New Mexico	1,000	1,000	44,000	8,000	54,000
New York	44,000	54,000	15,000	5,000	118,000
North Carolina	14,700	300	38,000	12,000	65,000
North Dakota	19,300	700	75,000	6,800	101,800
Ohio	28,000	12,000	110,000	265,000	415,000
Oklahoma	23,000	2,000	85,000	0	110,000
Oregon	21,000	4,000	114,000	75,000	214,000
Pennsylvania	22,000	53,000	125,000	485,000	685,000
Rhode Island	14,500	1,500	0	1,000	17,000
South Carolina	8,400	600	42,000	4,000	55,000
South Dakota	31,500	1,500	41,000	7,000	81,000
Tennessee	29,000	1,000	33,000	15,000	78,000
Texas	62,000	3,000	55,000	0	120,000
Utah	20,000	5,000	30,000	10,000	65,000
Vermont	26,000	13,000	20,000	1,000	60,000
Virginia	23,000	5,000	40,000	27,000	95,000
Washington	23,000	2,000	120,000	107,000	252,000
West Virginia	27,000	1,000	30,000	9,000	67,000
Wisconsin	60,000	25,000	92,000	160,000	337,000
Wyoming	11,600	400	25,000	200	37,200
Alaska	500	500	0	0	1,000
Hawaii	2,000	3,000	0	0	5,000
Porto Rico	60,000	8,000	20,000	2,000	90,000
Total	1,335,000	415,000	2,958,000	2,000,000	6,708,000

ITEMIZATION OF ESTIMATES

Appropriation: Eradicating Tuberculosis and Bang's Disease

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$6,750,000	$6,250,000	-$500,000
Transferred to "Salaries and expenses, Animal Industry, Agricultural Research Administration," meat inspection	-42,000	--	+42,000
Total obligations	6,708,000	6,250,000	-458,000

Obligations by Objects

	Standard Classification			
01	Personal services	3,293,310	3,259,614	-33,696
02	Travel	340,000	340,000	--
03	Transportation of things	26,500	26,500	--
04	Communication services	10,000	10,000	--
05	Rents and utility services	30,000	30,000	--
07	Other contractual services	180,000	180,000	--
08	Supplies and materials	210,690	216,386	+5,696
09	Equipment	200,000	170,000	-30,000
10	Lands and structures	2,500	2,500	--
13	Indemnities:			
	Tuberculosis	415,000	315,000	-100,000
	Bang's disease	2,000,000	1,700,000	-300,000
	Total obligations	6,708,000	6,250,000	-458,000

STATUS OF PROGRAM

Current Activities: The Bureau's cooperative field programs for eradication of tuberculosis and brucellosis of cattle are conducted in every State and in Puerto Rico. Tuberculosis eradication work is also conducted in Alaska, Hawaii, and the Virgin Islands. In addition, programs for the eradication of tuberculosis in poultry and swine and of Johne's disease (paratuberculosis) in cattle are underway.

Indemnity payments are made to compensate owners partially for losses of diseased cattle which are slaughtered. Payments are contingent upon payments of at least equal amounts by cooperating agencies.

Examples of Recent Progress:

1. At the beginning of the bovine tuberculosis eradication work infection was about 5 percent; more than 45,000 whole carcasses of cattle were condemned annually; and the annual loss to the livestock industry was estimated in excess of 30 million dollars. In 1947 infection had been reduced to 0.2 percent; cattle condemnations for the disease were only 1,000; and the present annual loss is estimated as $500,000.

2. Since the inception of the program for the eradication of brucellosis in July 1934 the percentage of infection has been reduced from 11 to 4.5 percent. The demand for eradication on the part of producers and consumers is great. The disease causes an annual loss in excess of $90,000,000 to producers and is a serious public health hazard, since the disease is transmissible to man.

3. Nearly all States have plans for accrediting individual herds as free from brucellosis. At the close of the fiscal year 1947 there were approximately 40,000 such herds containing about 792,000 cattle.

4. There were 513 counties in 22 States listed as modified accredited brucellosis-free areas, with an additional 175 counties looking toward eventual modification. North Carolina is the only State whose entire area has qualified as modified accredited. Six States have more than 25 counties in that class and in several States all counties are working toward that status.

5. The calfhood vaccination program was greatly expanded during the past fiscal year. Vaccine was administered to 891,709 calves between 4 and 8 months of age, an increase of 197,000 over the previous year. Since the inception of the program in 1941 a total of 2,857,839 calves have been vaccinated. Of the 232,293 reactors to the Bang's test last year 68,977 were retained in strict quarantine in herds practicing calfhood vaccination. When these reactors have outlived their useful-

ness as dairy or breeding animals and the vaccinated calves come of age, they will be slaughtered without payment of Federal indemnity. The milk from such animals is, of course, properly pasteurized.

6. A plan to offset the shortage of veterinarians by the employment of lay personnel to assist in the brucellosis program was presented at the December 1947 meeting of the United States Livestock Sanitary Association. In States where the plan is acceptable, lay personnel will draw blood samples in areas being retested, which will permit veterinary forces to spend more time advising with owners of infected herds concerning strictly veterinary phases of the problem. In addition, these lay assistants will brand and appraise reactors, supervise cleaning and disinfecting of premises, etc.

7. State and county appropriations for the cooperative tuberculosis and brucellosis eradication programs for the fiscal years 1947 and 1948 are approximately as follows:

	F.Y. 1947	
	Tuberculosis	Brucellosis
Operating expenses	$3,000,000	$2,646,000
Indemnities	1,400,000	3,442,000
Total	$4,400,000	$6,088,000
	F.Y. 1948	
Operating expenses	$3,096,000	$3,326,000
Indemnities	1,094,000	3,000,000
Total	$4,190,000	$6,326,000

8. Tabular material showing the extent of testing under these programs, average State and Federal indemnity payments, and other data follow:

RECORD OF TUBERCULIN TESTING
COOPERATIVE TUBERCULOSIS ERADICATION WORK
FISCAL YEAR 1947

STATE	Herds tested	Cattle tested	Reactors found	Percent reactors	Infected premises
Alabama	1,619	34,898	72	0.21	37
Arizona	2,062	29,044	99	0.34	65
Arkansas	1,797	16,250	13	0.08	9
California	19,707	532,835	1,375	0.26	294
Colorado	2,456	31,137	42	0.13	40
Connecticut	10,269	179.022	419	0.23	193
Delaware	2,442	39,731	167	0.42	75
Dist. of Col.	4	1,167	0	0.0	0
Florida	3,300	74,428	11	0.01	8
Georgia	1,067	18,736	29	0.15	11
Idaho	1,067	13,234	31	0.23	16
Illinois	42,972	631,500	1,055	0.17	626
Indiana	14,857	168,592	274	0.16	166
Iowa	21,459	417,212	1,431	0.34	897
Kansas	17,695	226,984	855	0.38	448
Kentucky	1,964	35,508	37	0.1	17
Louisiana	788	18,371	67	0.36	31
Maine	2,901	48,629	175	0.36	73
Maryland	11,738	209,404	224	0.11	144
Massachusetts	14,650	191,688	507	0.26	235
Michigan	28,802	349,306	301	0.09	206
Minnesota	28,261	489,142	463	0.09	304
Mississippi	2,576	23,141	15	0.06	2
Missouri	1,549	28,354	45	0.16	21
Montana	1,522	29,515	10	0.03	6
Nebraska	4,303	55,145	122	0.22	65
Nevada	185	3,233	0	0.0	0
New Hampshire	9,494	106,625	48	0.05	32
New Jersey	16,109	250,171	1,001	0.4	528
New Mexico	898	8,665	3	0.03	3
New York	59,696	1,312,116	1,914	0.15	702
North Carolina	2,683	47,896	4	0.08	4
North Dakota	2,347	55,071	82	0.15	40
Ohio	30,348	324,488	379	0.12	214
Oklahoma	2,834	59,402	71	0.12	54
Oregon	26,433	186,164	260	0.14	153
Pennsylvania	40,021	512,235	1,635	0.32	656
Rhode Island	1,908	28,870	84	0.29	52
South Carolina	837	17,866	166	0.93	12
South Dakota	2,639	53,202	60	0.11	40
Tennessee	646	15,073	20	0.4	8
Texas	9,651	148,124	118	0.08	54
Utah	6,588	52,121	217	0.42	175
Vermont	9,980	229,121	866	0.38	287
Virginia	4,695	107,670	233	0.14	68
Washington	4,788	48,134	107	0.22	51
West Virginia	2,163	28,473	13	0.05	7
Wisconsin	29,379	679,231	1,129	0.17	365
Wyoming	1,343	20,581	29	0.14	17
Hawaii	315	20,540	173	0.84	27
Puerto Rico	7,710	104,874	215	0.21	119
Totals	515,517	8,312,919	16,666	0.2	7,657

STATEMENT OF COMPARATIVE TESTING, HERDS AND CATTLE UNDER SUPERVISION, MODIFIED ACCREDITED AREAS, AVERAGE APPRAISAL, SALVAGE, AND STATE AND FEDERAL INDEMNITY IN TUBERCULOSIS ERADICATION WORK

FISCAL YEARS 1935 to 1947, INCLUSIVE

Fiscal Year	Tests Conducted		Reactors found	Percent infection	Under Supervision		*Modified accredited areas	Average during year			
	Herds	Cattle			Herds	Cattle		Appraisal	Salvage	State Indemnity	Federal Indemnity
1935	2,378,668	25,237,532	376,623	1.5	6,590,863	48,768,627	2,428	$57.55	$15.19	$15.87	$18.70
1936	1,944,624	22,918,038	165,496	.7	6,515,273	59,907,935	2,921	77.66	26.50	10.18	22.44
1937	961,109	13,750,308	94,104	.7	6,745,471	61,640,711	3,030	86.04	28.94	12.20	22.72
1938	1,007,586	14,108,871	89,359	.6	6,471,538	62,640,358	3,124	86.76	32.16	16.41	18.12
1939	750,806	11,186,805	60,338	.5	6,372,720	60,439,030	3,142	89.01	34.49	18.96	15.97
1940	819,408	12,222,318	56,343	.46	6,191,330	61,570,426	3,148	91.05	37.12	20.44	16.20
1941	777,435	12,229,499	40,702	.3	6,235,198	62,696,167	3,151	96.50	40.99	20.95	16.48
1942	681,504	10,983,086	28,008	.26	6,320,006	63,073,213	3,151	109.69	50.35	21.49	16.55
1943	563,413	9,308,936	17,167	.18	6,317,670	63,846,496	3,151	135.19	65.03	27.50	18.75
1944	524,927	8,894,466	18,338	.2	6,153,069	64,519,652	3,151	154.53	59.93	36.07	21.72
1945	484,749	8,105,480	19,534	.24	6,120,528	64,790,921	3,151	161.32	59.78	40.31	22.71
1946	505,296	8,454,463	19,464	.23	6,035,783	65,981,099	3,150**	174.20	69.00	37.26	23.89
1947	515,517	8,312,919	16,666	.2	6,082,666	65,577,421	3,150	199.46	83.55	40.81	24.19

*Includes Puerto Rico and the Virgin Islands

**Two counties consolidated

STATEMENT OF COMPARATIVE TESTS OF HERDS AND CATTLE UNDER SUPERVISION, AVERAGE APPRAISAL, SALVAGE, AND STATE AND FEDERAL INDEMNITY IN BANG'S DISEASE ERADICATION WORK

FISCAL YEARS 1935 to 1947, INCLUSIVE

Fiscal Year	Tests Conducted		Reactors found	Percent infection	Under supervision		Averages during year			
	Herds	Cattle			Herds	Cattle	Appraisal	Salvage	State indemnity	Federal indemnity
1935	212,482	3,317,760	381,010	11.5	187,109	2,936,347	$ 56.86	$19.87	1/$27.99	$24.29
1936	470,788	6,674,709	457,104	6.8	449,644	5,780,418	70.65	27.44	2/ 20.57	26.86
1937	630,917	8,021,167	397,864	5.0	719,452	7,877,612	70.67	27.94	3/ 19.25	26.45
1938	671,310	7,837,443	324,532	4.1	1,035,454	9,447,137	80.37	32.07	4/ 20.36	26.69
1939	724,613	7,591,398	219,165	2.9	1,372,410	11,111,643	97.17	33.97	5/ 26.09	20.00
1940	590,393	6,937,428	171,953	2.5	1,615,755	12,315,329	90.85	34.99	6/ 17.12	14.96
1941	677,544	7,465,254	182,075	2.4	1,883,914	13,932,693	93.28	37.68	7/ 17.19	15.19
1942	591,835	6,891,219	209,238[a]	3.0	2,105,294	15,627,027	99.19	52.06	8/ 17.71	15.83
1943	392,636	5,185,228	197,329[b]	3.8	2,199,535	16,616,522	128.03	64.87	9/ 18.63	16.77
1944	386,266	5,235,912	226,079[c]	4.3	2,254,235	17,326,138	143.34	59.75	9/ 22.54	19.30
1945	395,236	5,213,458	243,050[d]	4.7	2,307,585	17,545,638	139.35	56.63	9/ 22.14	19.25
1946	389,814	4,876,866	245,786[e]	5.0	2,360,699	17,870,154	149.65	68.64	9/ 22.07	19.34
1947	454,789	5,133,814	232,293[f]	4.5	2,249,118	17,589,018	178.25	82.93	9/ 23.44	20.64

1/ State indemnity paid in 1 State
2/ State indemnity paid in 2 States
3/ State indemnity paid in 5 States
4/ State indemnity paid in 10 States
5/ Beginning May 1, 1939, Federal indemnity payment limited to not exceed total amount paid by cooperating State agencies. State indemnity paid in 28 States.
6/ Indemnities paid in 36 States
7/ Indemnities paid in 40 States
8/ Indemnities paid in 41 States
9/ Indemnities paid in 40 States and Puerto Rico

a Includes 39,586 reactors held in calfhood vaccinated herds for which Federal indemnity will not be paid
b " 53,558 " " " " " " " " " " " " " "
c " 75,499 " " " " " " " " " " " " " "
d " 86,738 " " " " " " " " " " " " " "
e " 74,922 " " " " " " " " " " " " " "
f " 68,977 " " " " " " " " " " " " " "

RECORD OF BRUCELLOSIS (BANG'S DISEASE) TESTING
FISCAL YEAR 1947

STATE	Herds tested	Cattle tested	Reactors found	Percent reactors	Reactors held	Calves vaccinated
Alabama	11,017	93,343	4,140	4.4	86	10,797
Arizona	3,154	24,213	1,036	4.3	270	2,926
Arkansas	3,870	34,939	2,219	6.4	41	5,254
California	75	2,243	299	13.3	298	8,720
Colorado	4,931	36,729	1,615	4.4	1,598	18,044
Connecticut	1,799	29,584	419	1.4	0	16,147
Delaware	1,194	15,850	366	2.3	53	3,590
Florida	7,299	98,862	3,756	3.8	146	7,716
Georgia	9,840	76,143	2,772	3.6	0	479
Idaho	4,358	38,097	2,203	5.8	145	11,604
Illinois	58,735	409,988	19,360	4.7	12,525	103,074
Indiana	19,286	152,198	12,211	8.0	0	14,599
Iowa	13,076	120,066	10,374	8.6	55	24,902
Kansas	16,490	109,124	8,538	7.8	4	1,383
Kentucky	1,945	37,675	1,843	4.9	740	3,963
Louisiana	3,957	29,467	3,319	11.3	768	22,760
Maine	10,398	131,773	3,719	2.8	585	6,269
Maryland	7,946	98,548	2,380	2.4	622	21,179
Massachusetts	5	163	0	0.0	0	4,800
Michigan	14,215	150,828	4,843	3.2	2,887	5,904
Minnesota	27,010	418,993	23,281	5.6	1,588	38,967
Mississippi	4,698	54,895	2,460	4.5	0	1,082
Missouri	6,670	70,497	5,570	7.9	2,482	7,217
Montana	1,112	16,688	268	1.6	80	16,501
Nebraska	753	11,071	532	4.8	0	1,370
Nevada	694	10,054	559	5.6	1	2,616
New Hampshire	13,894	162,943	4,661	2.9	0	8,530
New Jersey	2,943	62,302	905	1.5	469	12,511
New Mexico	3,036	34,310	587	1.7	45	1,614
New York	13,899	305,637	26,989	8.8	26,305	144,957
North Carolina	8,215	129,404	1,341	1.0	40	603
North Dakota	4,840	88,726	4,942	5.6	955	13,240
Ohio	19,985	215,529	10,918	5.1	206	50,266
Oklahoma	2,581	48,458	2,636	5.4	746	4,257
Oregon	34,595	264,181	5,776	2.2	1,410	8,512
Pennsylvania	53,948	602,241	19,431	3.2	7	39,200
Rhode Island	93	2,969	59	2.0	54	339
South Carolina	6,140	48,435	757	1.6	86	463
South Dakota	702	12,710	1,124	8.8	322	8,410
Tennessee	2,626	63,693	3,246	5.1	1,130	14,667
Texas	2,748	49,551	2,870	5.8	0	5,521
Utah	4,634	34,560	1,922	5.6	1,912	13,621
Vermont	9,988	187,774	5,897	3.1	5,895	34,627
Virginia	6,992	116,941	3,169	2.7	19	8,640
Washington	11,695	119,802	5,099	4.3	885	39,596
West Virginia	6,188	87,399	1,143	1.3	0	3,010
Wisconsin	8,482	190,727	9,234	4.8	2,690	108,012
Wyoming	1,836	22,228	1,076	4.8	450	8,281
Puerto Rico	202	11,263	429	3.8	377	969
Totals	454,789	5,133,814	232,293	4.5	68,977	891,709

(d) Inspection and Quarantine

Appropriation Act, 1948	$1,225,197
Budget estimate, 1949	1,225,000
Decrease, 1949 (To round off appropriation total)	-197

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Scabies eradication	$110,103	$117,646	$117,646	- -
2. Control over interstate shipment of livestock for the purpose of preventing the spread of communicable diseases	451,835	350,000	350,000	- -
3. Enforcement of the 28-hour law	29,287	30,055	30,055	- -
4. Determination by inspectors in the field of the existence of diseases	26,985	42,756	42,756	- -
5. Inspection and quarantine of import animals	236,496	163,112	163,112	
6. Supervision over the importation of hides and other animal by-products, forage, etc.	101,003	50,000	50,000	- -
7. Inspection and testing of animals for export	40,523	32,516	32,516	- -
8. Eradicating cattle ticks	290,914	309,137	309,137	- -
9. Control of hog cholera and related swine diseases	102,860	109,975	109,778	-197
10. Sanitary control of animal casings offered for entry into the United States	- -	20,000	20,000	- -
Unobligated balance	9,948	- -	- -	- -
Total available	1,399,954	1,225,197	1,225,000	-197(1)
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+46	- -	- -	
Transferred from "Salaries and expenses, Animal Industry, Agricultural Research Administration," eradicating tuberculosis and Bang's disease (for Pay Act Costs)	-134,000	- -	- -	
Total appropriation or estimate	1,266,000	1,225,197	1,225,000	

DECREASE

(1) The decrease of $197 in this item for 1949 is to round off the appropriation total.

ITEMIZATION OF ESTIMATES

Appropriation: Inspection and Quarantine

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$1,225,197	$1,225,000	-197
Total obligations	1,225,197	1,225,000	-197

Obligations by Objects

Standard Classification			
01 Personal services	1,054,700	1,060,965	+$6,265
02 Travel	70,000	70,000	- -
03 Transportation of things	6,000	4,000	-2,000
04 Communication services	5,000	5,000	- -
05 Rents and utility services	12,000	12,000	- -
07 Other contractual services	27,000	25,000	-2,000
08 Supplies and materials	25,497	23,035	-2,462
09 Equipment	25,000	25,000	- -
Total obligations	1,225,197	1,225,000	-197

STATUS OF PROGRAM

Current Activities: The work currently carried on under this subappropriation is as follows:

1. Control and eradication of scabies of cattle and sheep, hog cholera, fever ticks, and miscellaneous diseases, such as dourine, anthrax, etc.

2. Detection of communicable diseases and prevention of their spread, through inspection of livestock at public stockyards; and identification of imported purebred livestock for certification to collectors of customs for free entry under the Tariff Act of 1930.

3. Prevention of livestock losses in interstate shipments through humane handling of livestock under the 28-Hour Law.

4. Inspections of imported animals and supervision of imported animal byproducts to prevent the introduction of communicable diseases of foreign origin, especially foot-and-mouth disease and rinderpest.

5. Inspections of export animals, and of facilities on transporting vessels to assure humane handling and safe transport.

Specific Examples of Recent Activity:

1. The volume and extent of scabies eradication in the past fiscal year is indicated by the following table:

	Sheep	Cattle
Field Inspections	8,106,426	1,814,319
Dippings	357,793	79,031
Infected Animals	11,806	14,425
Exposed Animals	39,598	18,685

Sheep scabies was found in 13 states and cattle scabies in 10. Although no cases of cattle scabies were reported from the Northeastern States, reports have been received of a condition known as barn-itch in New Hampshire, Vermont, New York, and some other Eastern States. It is believed that the condition may be a form of cattle scabies.

2. Funds for inspecting livestock for communicable diseases at public stockyards were curtailed approximately 19 percent. A stipulation in the appropriation act required that inspection be continued at all stockyards having Federal inspection in the last quarter of the fiscal year 1947. This stipulation made it necessary to reduce personnel at yards staffed with more than one inspector.

In view of the extraordinary emergency due to the existence of foot-and-mouth disease in Mexico, it was deemed inadvisable to reduce forces at the larger public markets, because of the widespread distribution of livestock through them susceptible to foot-and-mouth disease. To do otherwise would increase the danger of the spread of this disease if introduced into this country, over a considerable territory before being detected. With a disease as contagious as foot-and-mouth disease, early detection is of paramount importance to the livestock industry and to the economic welfare of the country. Therefore, funds for maintaining an adequate inspection service have been made available from the item "Eradication of foot-and-mouth and other contagious diseases of animals and poultry."

3. Inspection forces are making every effort to prevent the spread of diseases by prompt detection of animals affected and by treatment of animals, premises and transporting vehicles to minimize spread of infection. Livestock sanitary officials in States of origin are furnished information so the disease may be located and eradicated. For example: On July 10, 1947 a shipment of 243 sheep loaded at Fayetteville, Tennessee, were received at Armour and Company, Chicago, Illinois. When these sheep were inspected at Chicago by Bureau employees they were found to be affected with scabies. The shipper was notified that infection had been found, and he was instructed in the proper procedure to be followed in the treatment of the sheep and premises at home. The Bureau's inspector in charge at Nashville, Tennessee, was notified to inspect the remainder of the animals on the farm, and trace the origin of the animals, which was found to be a county in Alabama. The Montgomery, Alabama office, was given this information and an investigation was made in cooperation with Alabama livestock sanitary officials. As a result all the sheep in the county were inspected immediately. The infected and exposed flocks were placed under State quarantine.

At the 1947 International Livestock Exposition, Bureau inspectors located scabby cattle from 4 States (Nebraska, Illinois, Iowa and Ohio) and Canada.

Volume of work during the fiscal year 1947 is reflected in the following tables:

Inspection at public stockyards

	1946	1947
Number of stockyards operating	44	43
Located in cities	42	41
Animals inspected:		
Cattle	25,175,626	26,981,297
Sheep	24,815,619	21,474,039
Swine	23,700,587	24,701,220
Total animals inspected	73,691,832	73,156,556

	1946	1947
Animals dipped and immunized:		
Cattle dipped	2,808	4,852
Sheep dipped	203,602	195,499
Swine immunized	298,211	261,904
Total animals dipped and immunized	504,621	462,255
Health certificates issued for shipments	213,711	209,257
Infectious cars received	743	239
Cars cleaned and disinfected	5,341	5,675
Trucks cleaned and disinfected	336	842
Diseased animals detected (excludes those reacting to tests for tuberculosis and brucellosis)	6,044	5,304

Enforcement of animal quarantine acts

Violations investigated by the Bureau	14	4
Violations referred to the Solicitor of Department	5	1

The difference between the number of violations reported to the Bureau and those referred to the Solicitor is due to the fact that in some cases investigations of alleged violations have not been completed, and in others the evidence has been found to be insufficient to warrant further action.

4. Reports were made of 1,936 violations of the 28-hour law during the past fiscal year, 1,592 of which were investigated. Recommendations were made to the Solicitor of the Department for prosecution of 466 alleged violations. An agreement was made with one railroad company in a case containing 361 counts in which the carrier has agreed to pay penalties amounting to approximately $42,500. At the close of the fiscal year, 238 reports were under investigation and 133 awaiting investigation. Penalties in the amount of $41,100 were imposed by the courts in 385 cases decided in favor of the Government.

5. Laboratory tests for dourine were made of 1,986 blood samples, 24 of which were positive. The infection was found principally on an Indian reservation in Arizona and in the adjacent Sonora District of Mexico. In the latter area the Bureau continued its cooperation with Mexican authorities in obtaining and testing blood samples.

6. Inspections of livestock at ports of entry were made of over 281,000 animals during the past fiscal year, 5,248 of which were refused entry on account of disease. Importations were less than the previous year because animals susceptible to foot-and-mouth disease

were not imported from Mexico after December 26, 1946. Previously about 475,000 head of cattle were imported annually from Mexico. Importations were as follows:

Ports of entry	Cattle	Swine	Sheep	Goats	Horses & Mules	Asses	Other
Ocean ports ...	1,049	139	206	941	445	6	122
Canadian border ports	90,067	2,417	4,527	28	16,884	-	54
Mexican border ports	151,799	-	2,925	32	4,085	-	16
Total	242,915	2,556	7,658	1,001	21,414	6	192

7. Certification of imported purebred animals for free entry by species was: 197 horses; 28,915 cattle; 4,210 sheep; 1,885 swine; 3 goats; 985 dogs; and 9 cats; a total of 36,204 for the fiscal year 1947. This represented an increase of 39 percent over the previous year.

8. Supervision and control of imported hides, animal by-products, forage, etc. for the exclusion of foot-and-mouth and other communicable diseases continued in large volume in the fiscal year 1947. Imported hides alone aggregated more than 82,000,000, of which 2,450,000 were received from countries where foot-and-mouth disease or rinderpest exists. Animal byproducts were transported to and handled at approximately 200 destination establishments. All railroad cars, trucks, and premises involved in the transportation and handling of restricted import products were disinfected.

Particular attention must be given to the enforcement of regulations relating to the landing, from transports provisioned in countries where foot-and-mouth disease exists, of fresh, chilled, or frozen meats, or garbage derived therefrom. Without constant supervision and surveillance, the tendency of ship operators in port is to dispose of garbage containing bones and scraps of such meat in ways presenting danger to livestock. Some outbreaks of foot-and-mouth disease in this country have been attributed to such garbage.

9. A total of 162,127 animals were inspected for export. The number and kind of animals inspected was as follows:

Kind of Animal	Canada	Mexico	Other Countries	Total
Cattle	322	6,220	11,303	17,845
Swine	8	237	798	1,043
Sheep	46	3,490	1,068	4,604
Goats	7	828	417	1,252
Horses	867	9,337	104,154	114,358
Mules	117	479	21,633	22,229
Other animals	745	19	32	796
Total	2,112	20,610	139,405	162,127

10. Veterinarians made 29,763 farm inspections and consultations for hog cholera and related swine diseases, such as baby-pig disease, necrotic enteritis, influenza, pneumonia, etc. In addition, they assisted in the swine-erysipelas investigations by checking results of the serum-culture method of vaccination. This treatment was applied to 30,346 herds containing 1,974,785 hogs.

11. The cattle fever tick reinfestation in Florida has proved to be more extensive than at first indicated. In addition to the original 5 counties reinfested, some reinfestation has been found in 7 other counties. A systematic dipping campaign in Puerto Rico has been resumed on the eastern one-third of the island. In addition to cattle, horses, and mules, it was necessary to treat sheep and goats on infected premises. Control and eradication work in Texas was continued in the buffer zone adjacent to infected Mexican territory, which reaches from Del Rio, Texas to the Gulf of Mexico.

12. A new project covering supervision of animals casings offered for importation into the United States was set up following establishment of the meat inspection working capital fund, which covers only work done under the meat inspection laws. Animal casings are not a meat-food product; the supervision of importations is done under authority of the Act of February 2, 1903. When the program was inaugurated December 1, 1927, administration was placed under the Meat Inspection Division and has been financed, because of the close relationship to the work of that Division, from the meat inspection subappropriation. With the establishment of the meat inspection service on a fee basis beginning July 1, 1947, the work involved in the supervision of importation of animal casings was absorbed within funds available for "Inspection and Quarantine".

(e) Meat Inspection

Appropriation Act, 1948	$5,000,000
Budget estimate, 1949	- -
Decrease, 1949 (due to elimination of appropriation for a working capital fund provided in 1948 Agricultural Appropriation Act for financing meat inspection services, effective July 1, 1947, by reimbursement from fees charged packers for services rendered)	-5,000,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Meat inspection operations for packing plants under the Federal meat inspection service	$12,303,785	$12,656,000	$12,656,000	- -
2. Determination of adulterations and other objectionable conditions in meat food products by laboratory analysis	125,264	127,000	127,000	- -
3. Inspection of imported meats and meat food products	38,373	41,000	41,000	- -
4. Chemical, pathological and zoological investigations	34,916	36,000	36,000	- -
Unobligated balance	1,101	- -	- -	- -
Total available	12,503,439	12,860,000	12,860,000	- -
Prior year balance available	- -	- -	-5,000,000	-$5,000,000
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	279	- -	- -	- -

(continued on next page)

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
Transferred from: "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act Costs)	$-1,150,000	- -	- -	- -
"Salaries and Expenses, Animal Industry, Agricultural Research Administration," eradicating tuberculosis and Bang's disease (for Pay Act Costs)	-90,000	-42,000 1/	- -	-42,000
Payments received from non-Federal sources (Fees charged packers for services rendered)	-2,103,718	-12,818,000	-12,860,000	+42,000
Balance available in subsequent year	- -	+5,000,000	+5,000,000	- -
Total appropriation or estimate	9,160,000	5,000,000	- -	-5,000,000(1)

1/ Transfer for salaries for June 30, 1947, not chargeable to packers.

DECREASE

(1) The decrease of $5,000,000 in the item for 1949 is due to elimination of the appropriation provided in the 1948 Agricultural Appropriation Act to establish a working capital fund for the meat inspection service.

The 1948 Agricultural Appropriation Act provides that the cost of meat inspection shall be paid by the packers, and carried an appropriation of $5,000,000 for the establishment of a working capital fund designated as the "Meat inspection fund". This fund is to be fully reimbursed for all expenses necessary to furnish an adequate and efficient inspection or service, with payments by recipients of the service made at rates and fees fixed by the Secretary of Agriculture. So long as the meat inspection service is operated on this basis, the working capital fund will remain intact, and no appropriation will be necessary in the fiscal year 1949 or subsequent fiscal years.

A separate schedule of expenditures and reimbursements and a statement of current assets and liabilities of the working capital fund as of the close of the last completed fiscal year will be shown in the annual Budget starting with the budget for the fiscal year 1950 in which the financial situation for the first complete fiscal year of the operation of the fund (1948) will be shown.

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (deleted matter inclosed with brackets):

[Meat inspection: For carrying out the provisions of laws relating to Federal inspection of meat and meat-food products, $5,000,000, for deposit in the Treasury of the United States as a working capital fund, without fiscal year limitation, to be designated as the "Meat inspection fund", which shall be available for all expenses necessary to furnish an adequate and efficient inspection or service, and hereafter every person, firm, public agency, or other organization furnished inspection or service under said laws, including inspection of meat and meat-food products offered for import or export and the inspection of horse meat and horse-meat products, shall pay the United States therefor in accordance with regulations prescribed by the Secretary of Agriculture and at rates and fees to be fixed by him, which payments, to be deposited in the meat-inspection fund, shall provide full reimbursement for the estimated cost attributable to the furnishing of such inspection or service, including scientific and technical investigations and laboratory services; investigations relating to violations of, and authorized exemptions

under, the laws relating to Federal meat inspection; supervisory, administrative statistical, business management, and other costs; personal services in the District of Columbia and elsewhere, without regard to section 607 of the Federal Employees' Pay Act of 1945, as amended; rent in the District of Columbia and elsewhere; purchase and hire of passenger motor vehicles; printing and binding, including the purchase of printed tags, labels, stamps, and certificates as authorized by the Act of September 21, 1944 (7 U.S.C., 431); and other necessary expenses: Provided, That the Secretary of Agriculture may require advance payment, posting of bonds, or other assurance of payment, in order to protect the interests of the United States, and may withhold or withdraw such inspection or service for non-payment of charges or fees, or failure to provice the required assurance of payment: Provided further, That inspection or other technical services may be rendered to Government and other public agencies, upon request, under the terms and conditions herein provided: Provided further, That a schedule of obligations and reimbursements of the meat-inspection fund, as of the close of the last completed fiscal year, and as estimated for the current and ensuing fiscal years, shall be included in the Budget as submitted to Congress annually: And provided further, That payments shall be made for inspection or service rendered on and after July 1, 1947.]

It is proposed to delete the language providing for the meat inspection subappropriation as it is no longer necessary due to the establishment, by the Agricultural Appropriation Act, 1948, of a non-expendable working capital fund to be reimbursed from fees charged packers for meat inspection services.

ITEMIZATION OF ESTIMATES

Appropriation: Meat Inspection

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or Decrease (-)
Appropriation or estimate	+$5,000,000	- -	-$5,000,000
Prior year balance available	- -	+$5,000,000	+5,000,000
Balance available in subsequent year	- 5,000,000	- 5,000,000	- -
Transferred from "Salaries and expenses, Animal Industry, Agricultural Research Administration," eradicating tuberculosis and Bang's disease	42,000	- -	-42,000
Reimbursement for services performed	140,000	140,000	- -
Payments received from non-Federal sources	12,818,000	12,860,000	+42,000
Total obligations	13,000,000	13,000,000	- -

Obligations by Objects

Standard Classification			
01 Personal services	$12,750,571	$12,735,033	- $15,538
02 Travel	125,000	125,000	- -
03 Transportation of things	12,000	12,000	- -
04 Communication services	10,000	10,000	- -
Penalty mail	4,500	4,840	+ 340
05 Rents and utility services	13,000	13,000	- -
06 Printing and binding	25,000	25,000	- -
07 Other contractual services	22,000	22,000	- -
08 Supplies and materials	27,929	27,627	- 302
09 Equipment	10,000	25,500	+ 15,500
Grand total obligations	13,000,000	13,000,000	- -
Reimbursements for services performed	140,000	140,000	- -
Payments received from non-Federal sources	12,818,000	12,860,000	- -
Total available (exclusive of reimbursements)	42,000	- -	- -

STATUS OF PROGRAM

Current Activities: The work consists of administering the provisions of the meat inspection law, the horse meat law, and the import meat law. The purpose of these laws is to assure the production of disease-free, clean, and wholesome meats and meat products for interstate and foreign commerce.

To accomplish this, the Bureau exercises supervision over slaughtering and meat processing operations of packing plants engaged in interstate commerce through the activities of veterinary and lay meat inspectors assigned to each plant in such numbers as are necessary to assure an efficient inspection. The controls applied to imported meats are those which are calculated to give the American meat-consuming public the same protection with respect to imported meats as with meats produced domestically under the inspection. Foreign markets are kept open for American meats through a system of certification worked out under the inspection. Work is also performed for other governmental agencies on a reimbursable basis involving examinations of meat and meat products for specification compliance in connection with purchases made by such governmental agencies.

Examples of Recent Activities:

1. The volume of inspected product continues at the same high level as during the war years. There has been no diminution in volume of meats or meat products under Federal inspection since the provision for packer payment for inspection. The following tables compare inspections for the first 4 months of the fiscal year 1948 following passage of the 1948 Agricultural Appropriation Act with the same months in the two previous fiscal years:

Total Slaughter (Animals)

Year	August	September	October	November
1945	5,670,695	5,603,662	6,808,857	8,312,790
1946	6,208,057	2,491,766	6,896,077	8,971,147
1947	5,848,207	6,556,663	8,007,382	9,081,193

Total Processed Meat and Meat Food Products Inspected (Pounds)

Year	August (in millions)	September (in millions)	October (in millions)	November (in millions)
1945	893,652	761,091	836,727	1,060,136
1946	935,365	308,763	624,748	1,231,096
1947	958,453	902,488	1,040,864	1,134,454

2. Payment of the cost of inspection service by packers and others is not a significant factor in the number of plants operating under inspection. Of the 28 plants which dropped inspection this fiscal year 18 had been out of production for some time prior to the enactment of the requirement for packer payment. Two plants were added to the number of inspected establishments in November 1947. The net loss for the fiscal year 1948 has been only 8 operating plants.

Number of Establishments under Inspection

Year	June	July	Aug.	Sept.	Oct.	Nov.
1947	953	945	927	926	923	925

3. A basic charge of $89.60 per man-week is made to the packer for inspection service. Additional charges are made for overtime service at the rate of $2.58 per man hour; and for holiday pay and night differential at rates of $1.64 and $0.16 per man hour, respectively.

4. Laboratory studies on two recently proposed slaughterhouse procedures have been undertaken to determine whether they would produce any effect on the carcasses of food animals that would be objectionable from the standpoint of meat inspection. The procedures in question are (1) electrical stimulation of beef carcasses for the purpose of tenderizing beef and (2) immobilization of hogs prior to slaughter by inhalation of carbon dioxide gas.

5. An investigation to test the destruction of trichinae in pork roll showed that the salt content of pork products is an important factor in the destruction of trichinae. Curing periods adequate to destroy the parasite in products having a salt content of 3-1/3 pounds per hundredweight of meat cannot be expected to destroy trichinae in similar products having a lower salt content.

6. The scope of operations under the meat inspection laws are indicated by the following tables

Number of Establishments Covered

As of Close of Fiscal Year	Establishments	Cities and Towns
1942	679	264
1943	842	336
1944	896	343
1945	899	344
1946	941	372
1947	953	383

Animals Inspected, Ante-Mortem and Post-Mortem

Ante-Mortem Inspection

Fiscal Year	Animals Passed	Animals Suspected	Animals Condemned	Total Animals Inspected
1942	85,777,095	251,804	34,291	86,063,190
1943	95,156,504	248,981	43,511	95,448,996
1944	117,769,389	276,458	55,789	118,101,636
1945	94,130,084	262,347	46,922	94,439,353
1946	82,550,004	233,737	34,049	82,817,790
1947	83,885,502	236,086	10,594	84,132,182

Post-Mortem Inspection

Fiscal Year	Carcasses Passed	Carcasses Condemned	Total Carcasses Inspected
1942	85,749,940	278,012	86,027,952
1943	95,082,760	320,778	95,403,538
1944	117,656,285	387,774	118,044,059
1945	94,028,231	361,269	94,389,500
1946	82,462,169	319,091	82,781,260
1947	83,796,868	321,897	84,118,765

Inspection of Animals by Species

Ante-Mortem Inspections

	1942	1943	1944	1945	1946	1947
Cattle...	11,767,096	11,577,874	12,922,460	14,528,808	12,589,299	14,099,153
Calves...	5,548,431	5,093,324	6,280,148	7,677,057	6,479,866	7,021,950
Sheep & Lambs..	18,555,117	21,817,259	23,852,147	22,678,156	20,949,551	17,554,531
Goats ...	9,518	30,960	10,524	10,964	14,654	101,408
Horses*..	30,810	40,020	60,698	59,769	103,964	278,403
Swine ...	50,152,218	56,889,559	74,975,659	49,484,599	42,680,456	45,076,737
Total..	86,063,190	95,448,996	118,101,636	94,439,353	82,817,790	84,132,182

Post-Mortem Inspections

	1942	1943	1944	1945	1946	1947
Cattle ..	11,761,746	11,572,285	12,915,664	14,518,519	12,581,268	14,093,769
Calves ..	5,544,745	5,089,331	6,273,537	7,667,156	6,463,209	7,020,235
Sheep & Lambs..	18,547,305	21,804,016	23,837,737	22,664,800	20,953,511	17,551,638
Goats ...	9,498	30,891	10,503	10,893	14,637	101,407
Horses*..	30,787	39,935	60,501	59,674	103,880	278,346
Swine ...	50,133,871	56,867,080	74,946,117	49,468,458	42,664,755	45,073,370
Total..	86,027,952	95,403,538	118,044,059	94,389,500	82,781,260	84,118,765

* Horses are slaughtered and their meat is identified as such. It is handled and prepared in separate establishments from those handling cattle, calves, sheep, swine, and goats.

Meat and Meat Food Products Prepared and Processed Under Federal Inspection by Fiscal Years

Fiscal year	Pounds
1942	12,039,492,563
1943	14,292,716,225
1944	16,707,585,974
1945	13,408,978,079
1946	12,250,086,608
1947	11,888,911,964

Meat and Meat Food Products Classified by Type of Product

Product	1945	1946	1947
	Quantity(lbs)	Quantity(lbs)	Quantity (lbs)
Placed in cure:			
Beef	105,995,196	107,589,524	92,155,779
Pork	2,806,340,563	2,591,913,574	2,708,532,792
Smoked and/or dried:			
Beef	57,599,760	40,040,841	41,235,453
Pork	1,832,666,162	1,605,517,478	1,636,767,551
Sausage:			
Fresh finished	482,693,309	419,898,891	249,203,404
Smoked and/or cooked	1,101,017,588	1,080,553,779	976,167,713
To be dried or semi-dried	145,436,630	127,447,693	121,178,937
Loaf, Headcheese, chili con carne, jellied prod., etc.	238,704,866	235,914,975	190,986,294
Cooked meat:			
Beef	32,001,488	31,308,795	28,167,970
Pork	369,791,177	408,748,500	457,174,208
Canned meat and meat food products:			
Beef	233,604,900	219,774,073	127,047,466
Pork	905,938,896	739,017,397	479,556,952
Sausage	210,943,237	96,067,771	82,336,324
Soup	292,735,653	396,123,223	427,176,575
All other	714,455,038	537,707,445	431,642,900
Bacon, sliced	454,974,882	487,192,122	526,279,208
Lard:			
Rendered	1,424,657,052	1,301,144,235	1,458,778,606
Refined	1,163,382,544	1,095,261,253	1,097,302,388
Rendered Pork Fat:			
Rendered	143,801,698	86,737,003	85,516,742
Refined	86,624,177	59,794,041	50,257,233
Oleo Stock	121,405,231	111,116,689	93,782,996
Edible tallow	93,696,990	79,580,769	82,082,547
Compound containing animal fat	275,478,903	285,733,342	246,792,511
Oleomargarine containing animal fat	49,645,183	39,169,739	33,713,065
Miscellaneous	55,700,235	42,066,291	41,757,979
Horse meat products:			
Cured	814,834	5,451,244	12,400,102
Chopped	8,871,887	13,185,715	27,031,798
Canned	- -	6,030,206	83,870,681
Rendered fat	- -	- -	15,790
Total	13,408,978,079	12,250,086,608	11,888,911,964

Examination of Meat and Meat Food Products for Other Government Agencies (Reimbursable)

Branch of Government	1945 (Pounds)	1946 (Pounds)	1947 (Pounds)
Navy Department	631,898,252	414,461,302	92,255,178
Commodity Credit Corp. (Supply programs)	425,161,608	336,042,746	76,282,646
Coast Guard	17,231,340	5,888,835	420,127
War Shipping Administration	4,164,486	1,909,556	260,754
Marine Corps	313,978	87,929	28,127
Department of Interior	656,633	591,556	421,700
Veterans Administration	568,134	893,236	1,467,481
War Department	181,988	139,311	110,964
Maritime Commission	575,686	313,644	322,998
Department of Justice	107,880	42,224	5,560
All Others	144,351	22,826	52,306
Total	1,081,904,336	760,393,165	171,627,841 1/

1/ Includes 1,563,342 pounds rejected.

Summary of Samples Examined in Laboratories for Determination of Adulteration or Other Objectionable Conditions, Fiscal Year 1947

	Number examined	Reported adversely
Meat and meat food products	12,319	1,840
Edible fats and oils	658	79
Inedible grease	16	0
Cereals, spices, and condiments	4,584	117
Curing materials	2,137	67
Gelatin	150	1
Marking fluids	340	7
Colors	36	0
Denaturing oils	272	10
Water	1,907	201
Miscellaneous	1,128	159
Totals	23,547	2,481

Examination of Labels and Sketches, Fiscal Year 1947

Number of labels and sketches approved	21,380
Number of labels approved for imported meat	107
Number of labels and sketches refused approval	1,928
Total number of labels and sketches reviewed	23,415

Inspection of Imported Meat and Meat Food Products

Fiscal Year	Pounds
1944	57,400,875
1945	92,178,607
1946	64,484,876
1947	57,832,177

(f) Virus-Serum-Toxin Act

Appropriation, 1948	$315,000
Budget estimate, 1949	365,000
Increase, 1949 (To strengthen inspection of production of hog cholera virus, anti-hog-cholera serum, and vaccine to insure against spread of diseases through contaminated products)	+ 50,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or Decrease
1. Control of manufacture, importation and shipment of viruses, serums, toxins, etc.	$338,872	$315,000	$365,000	+ $50,000
Unobligated balance	1,128	- -	- -	- -
Total available	340,000	315,000	365,000	+ 50,000(1)
Transferred from "Salaries and expenses, Animal Industry, Agricultural Research Administration", eradicating tuberculosis and Bang's disease (for Pay Act costs)	- 40,000	- -	- -	
Total appropriation or estimate	300,000	315,000	365,000	

INCREASE

(1) Increase of $50,000 for strengthening inspection forces to insure against spread of diseases including foot-and-mouth should it enter this country through contaminated products:

Need for Increase: It is impossible with present funds to provide adequate inspection and supervision of the production of hog cholera virus, anti-hog-chorera serum, and vaccine to insure against spread of diseases through contaminated products. Strengthened inspection forces at the larger stations are essential if the licenses issued by the Secretary to biological producers are to carry reasonable assurance to livestock producers that products produced under license will, when properly used, afford protection and not be harmful to livestock.

Biologics that are contaminated or otherwise improperly prepared subject the livestock inductry to a potential danger reaching every farm or farm community. At this time of urgent need for high levels of livestock production, pure and potent serums are a big factor in maintaining such production through prevention of diseases.

It is not possible to pasteurize most biologics. This makes it necessary that animals used for production pruposes be in good health. Daily inspections must be made to determine at the earliest possible moment evidence of disease that may be in the incubative stage. The various steps in production must be supervised to prevent contamination and to assure that products are potent and will afford protection.

Close inspection and supervision of hog cholera products was established as the result of the 1914 outbreak of foot-and-mouth disease in this country. At that time hog cholera virus and anti-hog-cholera serum contaminated with the virus of foot-and-mouth disease were rather widely distributed. Close supervision proved of direct value in 1943 in preventing products contaminated with the virus of vesicular stomatitis from being marketed. The distribution of the products would have been very costly to the livestock industry since they were made by a large licensed establishment selling to veterinarians and biological houses throughout the country.

Plan of Work: Biological houses for the most part work 44 or 48 hours per week. Staggering the work week of Federal employees leaves an insufficient number of inspectors present, for proper inspection of operations. Additional inspectors would be assigned to the following cities:

Number	City
1	Denver, Colorado
1	E. St. Louis, Illinois
1	Fort Dodge, Iowa
2	Sioux City, Iowa
4	Kansas City, Kansas
2	St. Joseph, Missouri
2	Omaha, Nebraska
1	Columbus, Ohio

ITEMIZATION OF ESTIMATES

Appropriation: Virus Serum Toxin Act

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or Decrease (-)
Appropriation or estimate.....	$315,000	$365,000	+ $50,000
Total obligations	315,000	365,000	+ 50,000

Obligations by Objects

Standard Classification				
01	Personal services	298,822	347,440	+ 48,618
02	Travel	6,500	8,259	+ 1,759
03	Transportation of things	1,300	1,300	- -
04	Communication services	1,000	1,000	- -
05	Rents and utility services ..	1,900	1,900	- -
07	Other contractual services ..	900	900	- -
08	Supplies and materials	3,278	2,901	- 377
09	Equipment	1,300	1,300	- -
	Total obligations	315,000	365,000	+ 50,000

STATUS OF PROGRAM

Current Activities: Work under this item is carried on for the most part at licensed establishments producing veterinary biologics. The object is to insure purity and potency of biological products used by livestock producers. Impure products may spread disease and those which are impotent may fail either to prevent or to control an outbreak of disease.

Close supervision by veterinarians and lay assistants is required for satisfactory production of hog cholera virus, anti-hog cholera serum and hog cholera vaccine. Animals must be given the closest scrutiny before admittance to a licensed establishment and throughout their stay on the premises while being used for production and testing purposes. The present difficulty in procuring suitable animals necessitates even more than the usual vigilance.

Periodic or special inspections are made of plants producing other veterinary biologics. Samples are collected from each batch of some products for examination.

As of January 2, 1948, outstanding licenses permitted the production of 104 different biological products. Most of these products involved one form only. However, a number are produced in 2 or more forms so that the total number of products was 167.

Examples of Recent Progress: The progress and anticipated extent of work under this project is reflected in the following table:

	Actual F. Y. 1947	Estimated F.Y. 1948	Estimated F.Y. 1949
(a) Establishments producing anti-hog-cholera serum and hog-cholera virus	37	37	37
Production (cc):			
Serum (preserved product)	1,242,202,000	1,316,734,000	1,369,393,000
Virus:			
Simultaneous	88,538,000	93,850,000	97,594,000
Hyperimmunizing	246,575,000	261,369,000	271,823,000
Inoculating	1,103,000	1,169,000	1,215,000
Animal inspections	3,419,000	3,624,000	3,768,000
Tests supervised	17,200	17,300	18,300
(b) Establishments producing other biologics	36	36	36
Production:			
Cc	469,427,000	492,898,000	512,603,000
Milligrams	39,456,000	41,228,000	42,877,000
Disks	373,000	391,000	406,000

	Actual F.Y. 1947	Estimated F.Y. 1948	Estimated F.Y. 1949
(c) Products destroyed, (all kinds):			
Cc	48,302,000	50,717,000	52,735,000
Milligrams	2,166,000	2,274,000	2,364,000
Disks	26,000	30,000	30,000
(d) Export certificates issued	941	1,016	1,082

(g) Marketing Agreements, Hog Cholera Virus and Serum

Appropriation Act, 1948	$43,000(a)
Budget estimate, 1949	43,000(a)
Change, 1949	- -

(a) Transfer from the unobligated balance of the appropriation provided by section 12(a), Title I, of the Agricultural Adjustment Act of May 12, 1933.

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
1. Marketing agreements with respect to hog cholera virus and serum	$42,306	$43,000	$43,000
Unobligated balance	194	- -	- -
Total available	42,500	43,000	43,000
Transferred from "Salaries and expenses, Agricultural Adjustment Administration"	a/-42,500	-43,000	-43,000
Total appropriation or estimate	- -	- -	- -

a/ Includes $5,200 for Pay Act costs.

ITEMIZATION OF ESTIMATES

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or Decrease (-)
Transferred from "Salaries and Expenses, Agricultural Adjustment Administration"	$43,000	$43,000	- -
Total obligations	43,000	43,000	- -

Obligations by Objects

Standard Classification				
01	Personal services	42,790	$42,782	-$8
04	Communication services	10	10	- -
07	Other contractual services	200	208	+$8
	Total obligations	43,000	43,000	- -

STATUS OF PROGRAM

The Hog Cholera Virus and Serum Marketing Agreement and Order, administered by the Bureau of Animal Industry and the Control Agency selected by the Secretary from nominations of handlers of those products, is to insure the maintenance of an adequate supply of hog-cholera serum and virus for the control of hog cholera. The program is carried out through:

1. Regulation of the marketing of hog cholera serum and virus in interstate and foreign commerce.

2. Regulations to prevent undue and excessive fluctuations in price, unfair methods of competition and unfair trade practices in marketing.

Adequate supplies of hog cholera virus and serum are essential for the routine immunization of swine in furtherance of maximum hog production, and especially for use in any emergency arising from an extensive outbreak of hog cholera, which continues to be the most important disease of swine.

The work entails studies of economic data and statistical information, attending to correspondence and other problems of administration, and the holding of hearings in specific cases.

The following table gives comparative figures by fiscal years of the number of handlers operating under the marketing agreement:

	1946	1947	Estimated 1948	Estimated 1949
Producer-Handlers	37	35	35	36
Distributor-Handlers or equivalent including Volume Contract Purchasers	219	217	222	225

(h) Control and Eradication of Foot-and-Mouth Disease and Rinderpest and Eradication of Foot-and-Mouth and Other Contagious Diseases of Animals and Poultry

Appropriations, 1948	$5,100,000 1/
Budget estimate, 1949	- -
Decrease, 1949	-5,100,000

1/ In addition, $347,549 is available from prior year balance of appropriated funds. Also transfers from other funds have been made pursuant to the provisions of the Supplemental Appropriation Act, 1948, approved July 30, 1947.

The decrease of $5,100,000 in 1949 is an apparent reduction arising out of the elimination in 1949 of the appropriation under which the foot-and-mouth disease program was originally handled, and is subject to adjustment when appropriations required in fiscal years 1948 and 1949 to replace funds transferred, under authority of the Supplemental Appropriation Act, 1948, approved July 30, 1947, from other funds and appropriations can be more definitely determined. It is proposed to continue in 1949 the present language authorizing the Secretary to transfer from other funds of the Department the amounts necessary for the control and eradication program, pending the availability of information necessary for the preparation of appropriation estimates for the 1949 program.

STATUS OF PROGRAM

History and development: The existence of foot-and-mouth disease in Mexico was confirmed December 26, 1946. Public Law 8 authorizing the Secretary of Agriculture to cooperate with the Government of Mexico to eradicate, suppress, or control the outbreak, was approved February 28, 1947. The Mexican-United States Commission for the Eradication of Foot-and-Mouth Disease was established through an exchange of diplomatic notes between the two governments on March 17 and 18, 1947. The first appropriation ($9,000,000) for cooperative work with Mexico was approved March 27, 1947.

Commission offices were established in Mexico City on April 10, 1947. Field offices were set up as rapidly as possible in the various districts where work was to be performed. Professional and technical personnel were supplied by each Government. Laborers, interpreters, etc., were employed by the Joint Commission with funds furnished by the two countries. Indemnities for cattle were paid by contributions of the United States to the Joint Commission. The Mexican Government assumed the cost of indemnities for small animals--sheep, goats, and swine. Equipment was made available to the Joint Commission by both Governments, mostly by the United States as it consisted largely of heavy equipment and rolling stock such as tractors, cranes, bulldozers, jeeps, trucks, passenger motor cars, etc., not available in Mexico in sufficient quantity to supply needs.

Veterinarians and others made constant inspections of premises and susceptible animals to locate infected herds. Infected premises and areas were placed under quarantine maintained by the Mexican

Army. Susceptible animals of infected herds and susceptible animals of herds that had come in contact with infected herds were slaughtered and buried after a fair appraisal of the animals. The owners were paid in cash by field paymasters on the basis of appraisal certificates. Following these operations the infected and exposed premises were cleaned and disinfected. The plan was to withhold susceptible livestock from such premises for such periods of time as might be necessary to assure that the virus of the disease had been destroyed. At the end of such periods, restocking was to be permitted after tests had been made by exposing susceptible young animals on the premises.

From the beginning of the operations until October 3, 1947, the United States funds were used for payments for cattle slaughtered in the program and Mexican funds were used for payments for sheep, goats, and swine that were slaughtered. In some instances susceptible animals in herds that had been fully recovered from the disease or animals in areas near infected premises but not classed as exposed animals were slaughtered for food purposes and the salvage money retained by the Mexican Government. That Government, with these funds, engaged to replace slaightered work oxen with nonsusceptible work animals such as mules or horses.

Following a period of much dissatisfaction with the handling of the payments for small animals and delays in replacing oxen with mules, with subsequent detriment to the program because of resentment of the farmers, there was negotiated and put into effect on October 3, 1947, a new financial agreement. This agreement provided that the Mexican Government place at the disposal of the Commission the sum of 3,000,000 pesos (a little more than $600,000) monthly, with the United States making up the balance of the money necessary to carry out the work. Thus, all classes of expenditures--indemnities for cattle and small animals, operating expenses of the Joint Commission, and replacement of work oxen with nonsusceptible work animals--were to be met from one joint fund and funds received from salvage operations were to revert to that fund. A clause in the agreement provided that the salaries and expenses of professional and technical personnel detailed to the Joint Commission should continue to be paid by each Government and that all obligations incurred prior to October 3 should remain the responsibility of the individual Government, or of the Joint Commission, as the case might be.

Following the new agreement, field operations increased materially until the weekly slaughter of animals reached as high as 28,000 cattle and 30,000 small animals. However, it became increasingly apparent that the enforcement of quarantine restrictions was not effectively preventing the spread of the disease. The most strenuous efforts to tighten the quarantine controls and to inform the people of the purpose and necessity of the program were not sufficient to overcome their natural reluctance to abide by such restrictions and stop the unauthorized movements of people with susceptible animals and animal products.

Mexican Government officials, recognizing the situation, presented to the Commission their conclusions that Mexico could not stand the economic shock of the continuance of the slaughter program, as it was becoming apparent that the lack of adequate quarantine enforcement would make it necessary to slaughter eventually the greater number of susceptible animals in the quarantined area. Estimates of these numbers range from 4,500,000 to 5,000,000 cattle and a similar number of small animals. Members of the United States Section of the Commission and representatives of the Department being aware of the same considerations, acceded to the proposal of the Mexican Section of the Commission that the program be changed. An exchange of notes between the two Governments effecting this change took place on November 24 and 26, 1947.

Current Activities: The work in Mexico is now being carried out along the following lines, most of which were developed following announcement of a change in the program on November 26, 1947:

1. A maximum effort is being made to hold and strengthen quarantine lines immediately north and southeast of the present infected areas. In disease-free buffer zones immediately within these lines, intensive inspections are being made to discover foci of the disease, and when discovered, the infected and exposed animals are being disposed of by the slaughter and burial method. Inspections also are being made outside the quarantine lines and any infection found there is to be stamped out by the same method.

2. The field forces of the two Governments are concentrated along the quarantine lines and the adjacent disease-free zones. These zones are to be extended and enlarged as rapidly as possible through quarantine, slaughter and vaccination.

3. Vaccines are being tested, and research and study of the immunological characteristics of the disease as it exists in Mexico are being undertaken. Vaccines prepared in laboratories of foreign countries are being tried out experimentally. The results of these experiments will form the basis of a determination of the future scope of the use of vaccines in the campaign.

4. No indemnities are being paid for animals that are not slaughtered and buried as directed by the Commission.

5. The Commission has undertaken a survey and analysis of the factors entering into the holding of the quarantine lines to determine, among other things, the practicability and extent and location of any fencing that might be helpful in improving the enforcement of quarantine restrictions.

6. Through encouragement, technical assistance, and contracts for the purchase of canned meats, the cattle industry of northern Mexico has been offered an outlet for the meat of the surplus cattle of that region which are now prevented from normal movement into the United States. All canned meat and meat by-products purchased are being turned over to the Commodity Credit Corporation for use in foreign countries. Inspections are made to assure wholesomeness of product, sanitary conditions of slaughter and canning facilities, and compliance with contract specifications. This activity has favored the progress of the control and eradication program by gaining the support of the people of northern Mexico.

A second phase of the foot-and-mouth disease program, involving measures taken in the United States to prevent the introduction and dissemination of the disease in this country, and to prepare for prompt eradication if it should gain admittance, is being carried out along the following lines.

1. Maintenance of an extensive border patrol along the entire Mexican-United States boundary to enforce the embargo upon the importation of ruminants and swine from Mexico and the restrictions upon importation of products that might bring in the virus of foot-and-mouth disease.

2. Immediate investigation of suspected cases of animal diseases that simulate foot-and-mouth disease. These cases arise in all parts of the country and are all investigated promptly and thoroughly. Since the Mexican outbreak there have been many such cases reported. The investigations so far have without exception shown the condition to be something other than foot-and-mouth disease.

3. Constant planning with State livestock sanitary officials in order to be prepared for instant action in the event foot-and-mouth disease should be found in any part of this country.

4. Inspections at public stockyards throughout the country to detect animals showing symptoms suspicious of foot-and-mouth disease in order that the existence of the disease may be quickly ascertained, if it should enter the country. Early detection of the disease would prevent its spread and the chance that it might become established in this country.

5. The maintenance of cooperative research activities with established foot-and-mouth disease research stations in other countries. Also, the Bureau is formulating plans and recommendations for a permanent research institute to be operated by the United States in order that this country may do its part in contributing to the knowledge of the world about this extremely dangerous livestock disease.

The following tables show the financial status of the program as of December 31, 1947.

ERADICATION OF FOOT-AND-MOUTH DISEASE

Table I - Source of Funds
(As of December 31, 1947)

	Fiscal Year 1947	Fiscal Year 1948 thru 12-31-47	Cumulative total thru 12-31-47
Appropriations:			
Department of Agriculture Appropriation Act, 1947, approved June 22, 1946	$305,000	- -	$305,000
Public Law 22, approved March 27 1947	9,000,000	- -	9,000,000
Second Urgent Deficiency Appropriation Act, 1947 approved June 27, 1947			
Appropriation	1,500,000	- -	1,500,000
Balance of 1947 funds available in 1948	-347,549	$347,549	- -
Emergency Appropriation Act, approved July 3, 1947	- -	5,000,000	5,000,000
Department of Agriculture Appropriation Act, approved July 30, 1947	- -	100,000	100,000
Total appropriated funds	10,457,451	5,447,549	15,905,000
Transfer of funds from Commodity Credit Corporation under authority of The Supplemental Appropriation Act, 1948, approved July 30, 1947:			
Transfers completed	- -	25,000,000	25,000,000
Transfers pending - to cover meat purchase contracts on which deliveries will be made after December 31, 1947	- -	9,163,005	9,163,005
Total funds	10,457,451	39,610,554	50,068,005

ERADICATION OF FOOT-AND-MOUTH DISEASE

Table II - Obligations by Projects
(As of December 31, 1947)

	Fiscal Year 1947	Fiscal Year 1948 thru 12-31-47	Cumulative total thru 12-31-47
1. Cooperation with Government of Mexico in the eradication of foot-and-mouth disease in Mexico	$10,152,451	$26,124,832	$36,277,283
2. Enforcement of Mexican border quarantine	272,399	615,224	887,623
3. Inspection at public stockyards and in the field to determine the existence of foot-and-mouth disease	1,865	93,035	94,900
4. Research on foot-and-mouth disease	--	4,263	4,263
5. Purchases of canned meat in northern Mexico	--	12,773,200 a/	12,773,200 a/
Total	10,426,715	39,610,554	50,037,269
Unobligated balance of funds appropriated under the Department of Agriculture Appropriation Act, 1947, approved June 22, 1946, not available in fiscal year 1948	30,736	--	30,736
Total obligations	10,457,451	39,610,554	50,068,005

a/ To be credited with proceeds from sale of meat.

ERADICATION OF FOOT-AND-MOUTH DISEASE

Table III - Obligations by Objects
(As of December 31, 1947)

	Standard Classification	Fiscal Year 1947	Fiscal Year 1948 thru 12-31-47	Cumulative total thru 12-31-47
01	Personal services	216,328	1,700,043	1,916,371
02	Travel	76,274	775,602	851,876
03	Transportation of things	92,699	148,807	241,506
04	Communication services	2,798	8,752	11,550
05	Rents and utility services	154	18	172
07	Other contractual services			
	Purchases of canned meat in northern Mexico	- -	12,773,200	12,773,200
	Other	33,246	60,252	93,498
08	Supplies and materials	72,063	63,757	135,820
09	Equipment	933,153	2,080,123	3,013,276
13	Refunds, awards, and indemnities:			
	Payments to Mexican-United States Commission for the Eradication of Foot-and-Mouth Disease	9,000,000	22,000,000	31,000,000
	Total	10,426,715	39,610,554	50,037,269
	Unobligated balance of funds appropriated by the Agricultural Appropriation Act, 1947, not available in the fiscal year 1948	30,736	- -	30,736
	Total obligations	10,457,451	39,610,554	50,068,005

ERADICATION OF FOOT-AND-MOUTH DISEASE

Table IV -- Slaughter Statistics

	Cattle April 10 through December 27, 1947	Small Animals (Swine, sheep and goats) October 3 through December 27, 1947 a/
Number	503,242	198,858
Value	$25,264,803	$1,075,995
Average value	$50.20	$5.41

a/ Does not include small animals slaughtered prior to October 3, 1947 when payment for slaughter of small animals was handled directly by the Mexican Government rather than through the Mexican-United States Joint Commission.

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed with brackets):

Change No.	
1	[For expenses necessary, including personal services in the District of Columbia, in the arrest and eradication of foot-and-mouth disease, rinderpest, contagious pleuropneumonia, or other contagious or infectious diseases of animals, or European fowl pest and similar diseases in poultry, including the payment of claims growing out of past and future purchases and destruction of animals (including poultry) affected by or exposed to,or of materials contaminated by or exposed to, any such disease,wherever found and irrespective of ownership, under like or substantially similar circumstances, when such owner has complied with all lawful quarantine regulations, $100,000, together with such sums from other appropriations of the Department as the Secretary may deem necessary, to be available only in an emergency which threatens the livestock or poultry industry of the country: Provided, That the payment for such animals hereafter purchased may be made on appraisement based on the meat, egg-production, dairy, or breeding value, but in case of appraisement based on breeding value no appraisement of any such animal shall exceed three times its meat, egg-production, or dairy value, and, except in case of an extraordinary emergency, to be determined by the Secretary, the payment by the United States Government for any such animals shall not exceed one-half of any such appraisements: Provided further, That poultry may be appraised in groups when the basis for appraisal is the same for each bird.] [The appropriation, "Eradication of Foot-and-Mouth and Other Contagious Diseases of Animals", in the Department of Agriculture Appropriation Act, 1948, is hereby amended to read as follows:] For expenses necessary, including personal services in the District of Columbia, in the arrest and eradication of foot-and-mouth disease, rinderpest, contagious pleuropneumonia, or other contagious or infectious diseases of animals, or European fowl pest and similar diseases in poultry, including the payment of claims growing out of past and future purchases and destruction of animals (including poultry) affected by or exposed to, or of materials contaminated by or exposed to, any such disease, wherever found and irrespective of ownership, under like or substantially similar circumstances, when such owner has complied with all lawful quarantine regulations; and for foot-and-mouth disease and rinderpest programs undertaken pursuant to the provisions of the Act of February 28, 1947 (Public Law 8, Eightieth Congress), and the Act of May 29, 1884, as amended (7 U.S.C., 391; 21 U.S.C., 111-122), including

Change No.

expenses in accordance with section 2 of said Public Law 8, [$100,000, together with such sums (which may be transferred
2 to and made a part of this appropriation)] the Secretary may transfer from other appropriations or funds available to the bureaus, corporations, or agencies of the Department such sums as [the Secretary] he may deem necessary, to be available [,] only in an emergency which threatens the livestock or
3 poultry industry of the country, and any unexpended balances of funds transferred under this head in the fiscal year 1948 shall be merged with such transferred amounts: Provided, That, except for payments made pursuant to said Public Law 8, the payment for such animals hereafter purchased may be made on appraisement based on the meat, egg-production, dairy, or breeding value, but in case of appraisement based on breeding value no appraisement of any such animal shall exceed three times its meat, egg-production, or dairy value, and, except in case of an extraordinary emergency, to be determined by the Secretary, the payment by the United States Government for any such animals shall not exceed one-half of any such appraisements: Provided further, That poultry may be appraised in groups when the basis for appraisal is the same for each bird.

4 [Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby appropriated, out of any money in the Treasury not otherwise appropriated, for expenses necessary to enable the Secretary of Agriculture to control and eradicate foot-and-mouth disease and rinderpest as authorized by the Act of February 28, 1947 (Public Law 8), and the Act of May 29, 1884, as amended by the Act of September 21, 1944 (21 U.S.C. 114a), fiscal year 1947, $9,000,000, to be available for the purposes of carrying out the provisions of said Public Law 8 until June 30, 1948.]

5 [Control and eradication of foot-and-mouth disease and rinderpest:

For an additional amount, fiscal year 1947, to enable the Secretary of Agriculture to control and eradicate foot-and-mouth disease and rinderpest as authorized by the Act of February 28, 1947 (Public Law 8), and the Act of May 29, 1884, as amended (7 U.S.C. 391; 21 U.S.C. 111-122), including expenses in accordance with section 2 of said Public Law 8, $1,500,000, to remain available until June 30, 1948.]

6 [Control and eradication of foot-and-mouth disease and rinderpest:

To enable the Secretary of Agriculture, during July 1947, to control and eradicate foot-and-mouth disease and rinderpest as authorized by the Act of February 28, 1947 (Public Law 8), and the Act of May 29, 1884, as amended (7 U.S.C. 391; 21 U.S.C. 111-122), including expenses in accordance with section 2

of said Public Law 8, $5,000,000, to be merged with the appropriation made under this head in the Second Urgent Deficiency Appropriation Act, 1947 (Public Law 122).]

The first and second changes propose to delete the language contained in the 1948 Agricultural Appropriation Act for the appropriation "Eradication of Foot-and-Mouth and Other Contagious Diseases of Animals" which provided the nominal sum of $100,000, and proposed to continue in lieu thereof the amended language, as contained in the Supplemental Appropriation Act, 1948, authorizing the Secretary to transfer from other funds of the Department the amounts necessary for this purpose with slight changes to simplify the wording of the item. This change will not affect, in any way, the scope of work or authorities provided under this item.

The third change is proposed to amend the language to provide for the merger of unexpended balances of funds transferred to this appropriation in 1948 with the funds which may be transferred in 1949 in order to facilitate administration and field operations.

The fourth, fifth, and sixth changes delete items providing supplemental appropriations for fiscal years 1947 and 1948 for the control and eradication of foot-and-mouth disease and rinderpest.

ITEMIZATION OF ESTIMATES

Appropriation: Eradication of Foot-and-Mouth and Other Contagious Diseases of Animals

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or Decrease (-)
Appropriation or estimate	$5,100,000	- -	-$5,100,000
Prior year balance available	347,549	- -	-347,549
Total obligations	5,447,549	- -	-5,447,549
Obligations by Objects			
Standard Classification			
01 Personal services	420,294	- -	-420,294
02 Travel	33,713	- -	-33,713
03 Transportation of things	42,401	- -	-42,401
04 Communication services	2,776	- -	-2,776
07 Other contractual services	1,638	- -	-1,638
08 Supplies and materials	7,042	- -	-7,042
09 Equipment	839,685	- -	-839,685
13 Refunds, awards, and indemnities:			
Payments to Mexican-United States Commission for the eradication of foot-and-mouth disease	4,100,000	- -	-4,100,000
Total obligations	5,447,549	- -	-5,447,549

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Research and Marketing Act of 1946, Department of Agriculture (Bureau of Animal Industry):			
(Title 1, Sec. 10a):			
Utilization research	---	$90,000	---
(Title 1, Sec. 10b):			
Research other than utilization	---	131,000	---
Total, Research and Marketing Act	---	221,000	a/ ---
Special Research Fund, Department of Agriculture (Bureau of Animal Industry):			
For special research projects and four regional research laboratories, improvement of sheep and swine through application of breeding methods and for studies of diseases of livestock and poultry	$360,764	350,700	$378,700
Working Fund, Agriculture Agricultural Research Administration, Bureau of Animal Industry:			
For studies of factors affecting the keeping quality of bacon for the War Department	7,555	2,182	---
Expenses and Refunds, Inspection and Certification of Canned Wet Animal Foods Bureau of Animal Industry):			
For inspection and certification of canned wet animal foods upon application of an interested party, which service is financed by fees which are covered into the Treasury as a special trust fund and are appropriated and made available for the payment of expenses and refunds in connection with the work provided for under cooperative agreements	14,432	72,967	73,162

(continued on next page)

a/ Allotments under this appropriation for the fiscal year 1949 have not been determined.

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Penalty Mail Costs, Department of Agriculture (Allotment to Bureau of Animal Industry):			
For cost of penalty mail pursuant to Public Law 364	22,887	26,160	28,120
TOTAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	405,638	673,009	479,982

PASSENGER MOTOR VEHICLES

Replacements. The 101 cars to be replaced constitute 13 percent of the total number of cars now owned and operated under the above appropriations. Of the 769 Bureau passenger motor vehicles now in operation, more than 90 percent are used in inspectional work on farms in rural districts, and many of them have mileage of 18,000 and upward a year. It has been the Bureau's experience that cars assigned to rural inspectional work receive such rough use on secondary and country roads and lanes leading to farms that they normally should be replaced about every three years in order to keep mileage charges at the lowest possible point and to prevent frequent interruptions to the work which occur due to breakdowns when badly worn equipment is kept in service. All the cars to be replaced have reached the point where they can no longer be kept in service, the average mileage being approximately 70,000 and in individual cases the mileage is 100,000.

Acquisitions. The new cars are principally for work in eradicating Bang's disease. It is contemplated that a number of lay workers will be employed in the fiscal year 1949 to assist veterinarians by drawing blood samples and cars must be available for their use. The 10 new cars for meat inspection will provide more flexibility in assignment of personnel at the larger stations and will accomplish savings in salaries. The car to be purchased under the item "Animal Husbandry" will be used by officials at Beltsville for travel to surrounding territory, to more remote parts of the station, and for visits to cooperative projects in nearby States.

PENALTY MAIL ESTIMATE
Sec. 2, Public Law 364, 78th Congress
(Allotment to Bureau of Animal Industry)

	1947	1948	1949	Increase (+) or decrease (-) 1949 over 1948
Category 1	$246	$259	$278	+$19
Category 2	22,641	25,901	27,842	+1,941
Total	22,887	26,160	28,120	+1,960(1)

(1) The increase of $1,960 is for the purpose of providing sufficient funds with which to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20.00 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

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Category 1 consists of bulletins and leaflets in connection with the work of the Bureau sent in reply to specific inquiries for information, and for mailing new publications which may be issued on foot-and-mouth disease, Bang's disease, hog cholera control, etc., to field employees and to individuals cooperating with the Bureau.

Category 2 consists of general administrative correspondence between Washington and the field stations located throughout the 48 States and the mailing of vouchers, payrolls, and other operating documents, etc. Also included in this category are cards and letters from field stations to farmers asking them to have their cattle ready for testing and announcing results of tests.

(a) BUREAU OF DAIRY INDUSTRY

Appropriation Act, 1948	$1,016,300
Budget estimate, 1949	1,050,000
Increase, 1949	+33,700

SUMMARY OF INCREASES, 1949

For replacement of worn-out farm and other equipment (non-recurring)	+7,900
For repair and reconditioning of facilities at field stations (non-recurring)	+31,100
Elimination of non-recurring item for repair of tornado damage at the dairy field station, Woodward, Oklahoma	-5,300

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Investigations of influence of breeding, feeding and management practices on efficiency of production	$430,448	$384,700	$423,700	+$39,000(1)
2. Investigations of the nutritional and other physiological factors affecting the usefulness of dairy cattle	177,214	140,400	140,400	--
3. Investigations of dairy herd improvement association practices in relation to efficiency of production	279,446	290,900	290,900	--
4. Investigations of milk and milk products	191,980	169,600	169,600	--
5. Administration and enforcement of the Process (or Renovated) Butter Act (regulatory)	13,475	25,400	25,400	--
6. Repair of tornado damage, dairy field station, Woodward, Okla.	--	5,300	--	-5,300(2)
Unobligated balance	780	--	--	--
Total available	1,093,343	1,016,300	1,050,000	+33,700
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+469	--	--	

(continued on next page)

PROJECT STATEMENT (CONT'D.)

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act costs)	-102,300	- -	- -	
Total appropriation or estimate	991,012	1,016,300	1,050,000	

INCREASES AND DECREASES

The net increase of $33,700 in this item for 1949 consists of the following:

(1) An increase of $39,000 under the project "Investigations of the influence of breeding, feeding and management practices on efficiency of production"

Need for Increase: The periods of high costs which have prevailed for several years have made it extremely difficult for the Bureau to operate its field experiment stations on a basis calculated to produce results and to justify their continued operation. There is a point below which the number of animals in the herds of these stations cannot fall without reducing the effectiveness of the work to the point where further expenditures for their operation would constitute a waste of public funds. Operating costs have increased so materially in recent years it has been necessary to reduce the size of the experimental herds in some cases, but by limiting expenditures to the barest necessities it has been possible to maintain all herds at sizes which justify continuance of the research and demonstration programs. There is no present indication that costs will decline materially in the fiscal year 1949, and if not, the Bureau's financial situation insofar as its field stations are concerned will be as critical, if not more so, as at the present time, thus precluding any possibility of making equipment replacements or reconditioning buildings and building equipment without additional funds.

While operating costs have advanced materially during the past several years, receipts from sales of products at these dairy experiment stations have increased accordingly. During the fiscal year 1947, for example, the sales receipts from all field experiment stations outside of Beltsville amounted to $56,500. Expenditures totalled

$125,300; therefore, 45percent of moneys expended were returned to the Treasury. On the other hand, in 1939 receipts were only $16,300, or 18 percent of expenditures. While expenditures for the operation and maintenance of these stations have increased from $88,600 in 1939 to $125,300 in 1947, the net cost of operation has actually decreased from $72,300 to $68,800. At Beltsville, Md., operation and maintenance expenses have increased from $125,250 in 1939 to $158,000 in 1947. During the same period, however, income has increased from $27,450 to $78,420; consequently the net cost of operating has actually decreased by approximately $18,000.

The increase of $39,000 in 1949 for these purposes is composed of:

(a) An increase of $31,100 for repairing and reconditioning buildings and building equipment at field stations:

The Government has an investment of $688,000 in buildings at dairy field stations. These buildings are urgently in need of repairs and reconditioning. Such funds as could be spared from year to year have been used for making the most essential repairs, but these sporadic attempts to preserve the buildings and retard deterioration have not been successful. At Beltsville, for example, expenditures for building maintenance have averaged about $4,000 a year for the past ten years. All the Bureau's buildings at Beltsville should be painted. The existing heating system needs to be repaired, and brine lines, refrigeration rooms, and temperature controls should be reconditioned. The foundation and walls of silos constructed in 1915 should be repaired and the silos painted on the inside. Safety platforms should be installed in silos. The floors in certain barns are badly worn and the numerous holes cause an extremely unsanitary and dangerous condition. Feed mangers in the test barn are in need of repair or replacement. Similar repairs are required at the Lewisbung, Tenn., and Mandan, N. Dak., stations.

The increase of $31,100 is estimated as follows, the work to be performed by contract:

Agricultural Research Center, Beltsville, Md.		
Painting barns, hay barracks and heifer shed	$15,000	
Repairs to heating system	3,000	
Reconditioning brine lines, refrigeration rooms, etc	2,500	
Silo repairs, including installation of safety platforms and inside painting	2,500	
Repairs to barn floors, feed mangers, fences and walkways	2,000	$25,000

Lewisburg, Tennessee		
Painting interior of superintendent's residence, 2 barns and milking house	1,300	
Repairs to fences	800	
Repair electric lines and refrigeration machinery	500	
Replace stanchions, gates, and feed racks in calf barn	900	3,500
Mandan, North Dakota		
Painting all buildings	1,000	
Repair fences	300	
Repair silos, ice well and scales	500	
Replace stanchions, gates and feed racks in heifer and bull barns	800	2,600
Total		31,100

(b) An increase of $7,900 to replace equipment:

Equipment proposed to be replaced consists of tractors, manure spreaders, pickup trucks, and milking machines. The tractors vary in age from 9 to 18 years, the spreaders from 17 to 19 years, and the trucks from 7 to 15 years. The milking machines proposed to be replaced were acquired in 1930.

The increase of $7,900 is estimated as follows:

Woodward, Oklahoma	
Replacing tractor, tractor spreader, truck and milking machine	$3,900
Lewisburg, Tennessee	
Replacing milking machine	1,000
Mandan, North Dakota	
Replacing tractor spreader and truck	1,500
Willard, North Carolina	
Replacing tractor	1,500
Total	7,900

(2) A decrease of $5,300 to eliminate a non-recurring item for repair of tornado damage at the Woodward, Okla., field station.

CHANGE IN LANGUAGE

The estimates include proposed changes in language as follows (deleted matter enclosed with brackets):

[For repair of buildings, fence, electric line and feed bunk, recently damaged by tornado at the dairy field station, Woodward, Oklahoma, $5,300.]

The change in language deletes the non-recurring item provided in the 1948 Agricultural Appropriation Act for repairing tornado damage at the Woodward, Oklahoma, dairy field station.

ITEMIZATION OF ESTIMATES

Appropriation: Salaries and Expenses, Dairy Industry

Funds Available for Obligation

Item	Estimate 1948	Budget Estimates 1949	Increase(+) or decrease(-)
Appropriation or estimate.....	$1,016,300	$1,050,000	+$33,700
Total obligations.....	1,016,300	1,050,000	+ 33,700

Obligations by Objects

	Standard Classification			
01	Personal services.....	$$ 782,000	$ 776,700	$ -5,300
02	Travel.....	5,200	5,200	---
03	Transportation of things..	3,400	3,400	---
04	Communication services	3,200	3,200	---
05	Rents and utility services	13,700	13,700	---
07	Other contractual services	77,800	103,600	+25,800
08	Supplies and materials....	110,000	115,300	+5,300
09	Equipment.....	21,000	28,900	+7,900
	Grand total obligations..	1,016,300	1,050,000	+33,700

STATUS OF PROGRAM

Current Activities: The Bureau conducts activities in every State and in Hawaii and Puerto Rico, through field and laboratory experiments in cooperation with State colleges, experiment stations, and extension services, other agencies of the Federal Government, dairymen, and manufacturers of dairy products. It conducts research into methods for improving the producing efficiency of dairy cows; the nutritional requirements of dairy cattle for maintaining optimum levels of usefulness; the value of feeds, feed constituents, and feeding regimes as sources of nutrients; the nutritional value of milk and the effect of the nutrition of the cow upon the milk produced; the physiological factors affecting the general economic usefulness of dairy cattle; improvements in the quality of dairy products; developments of methods of manufacturing new dairy products through chemical, bacteriological, and technological research. It also enforces regulations relating to the manufacture of process butter. The economic significance of dairy research is apparent in the fact that in the United States 24.5 million cows were milked in 1946, and the farm value of milk and milk products was 3.7 billion dollars. Among the projects now being conducted, the following are selected as typical:

1. Thirty-one more bulls from the Beltsville herd were placed with cooperators for proving; 41 Holsteins and 18 Jerseys are being proved in artificial breeding associations. The need for more proved sires is emphasized by the rapid expansion of artificial breeding.

2. To determine whether heifers between the ages of 10 and 24 months can be reared on all roughage rations consisting of corn silage, with alfalfa and timothy hays. A considerable saving in the cost of rearing heifers will be effected if preliminary results are confirmed.

3. To confirm preliminary results that enough vitamin D for the normal functions of growing calves is provided by barn-cured hay and wilted alfalfa silage, when fed in usual quantities.

4. Experiments to determine the effect on milk yield as a result of feeding low levels of protein during lactation under conditions resembling those encountered in practice.

5. Experiments to determine the yields of nutrients from renovated permanent pastures by liberal fertilization, cultivation, and reseeding to adapted high-yielding grasses and legumes versus well fertilized, rotation-grazed, permanent pastures, or pastures rotated with such crops as corn and alfalfa.

6. Experiments to determine the effect on carotene and protein content, aroma, and color of barn-dried hay as a result of varying moisture content of the crop when placed on the drier, the depth of material on the drier, and the temperature of the air used in the drying process.

7. Sire proving in dairy herd improvement associations: 2,237 sires were proved during 1947. The daughters of these sires produced an average of 385 pounds of butterfat as compared to 190 pounds for all cows in the country. 330 sires used in artificial breeding associations were proved in dairy herd improvement associations.

Selected Examples of Recent Progress. Among recent accomplishments in which the Bureau has participated are the following:

1. Seven sons of proved sires from the Huntley, Mont., herd sired 113 daughters whose average production was 18,804 pounds of milk and 689 pounds of butterfat as compared to averages of 17,813 and 640 pounds of milk and fat, respectively, for their dams.

2. A jersey herd in Virginia which has proved 6 sons of sires from the Beltsville herd averaged 9,112 pounds of milk and 482 pounds of butterfat in 1946, as compared to 5,259 and 243 pounds of milk and fat, respectively, in 1928 when the cooperative work began.

3. A mineral mixture consisting of copper, iron, manganese and cobalt was effective in curing a form of anemia found to develop in calves.

4. No noticeable nutritional deficiency either in growth, reproduction, or lactation resulted from feeding a grain mixture with corn silage as the sole roughage.

5. No noticeable effects on conception rates were found when cows were fed continuously on barn rations.

6. Field plots used for three consecutive years for pasture and hay after being planted one year to corn and one year to wheat have yielded 18 percent more nutrients than comparable permanent Kentucky bluegrass pasture plots.

7. Developed a permanent loose-leaf herd book for use in dairy herd improvement associations for recording feed and production data for the entire lifetime of a cow.

8. The keeping quality of dried milk is improved by increasing the percentage of ascorbic acid in the milk prior to drying.

9. A relatively simple key has been developed that will make possible the identification and differentiation of lactic acid forming bacteria occuring naturally in milk and which are used in the making of cheese, fermented milks, and other milk products.

10. The phosphatase test perfected in the Bureau laboratories is a reliable measure of the adequacy of pasteurization of milk, or the milk used in making various milk products.

11. The relationship between temperature of storage and time required to develop defects of sweetened condensed milk through thickening and gelation during storage has been determined.

12. The growth of many bacteria in milk is stimulated rather than retarded by high dilutions of either penicillin or streptomycin.

13. A concentration of 0.15 percent isobutyl-vanillate had a spore-inhibiting effect in milk, against a wide variety of organisms.

14. In concentrated milk products such as sweetened condensed milk, sweetened condensed whey, modified evaporated milk (for infant foods), powdered skim milk, and powdered whole milk, honey is usable as a sweetening agent.

15. Ascorbic acid (vitamin C), a normal constituent of milk, is destroyed by oxidation. At relatively high storage temperatures, an oxidized flavor develops in many cases, which can be retarded by removing the oxygen from the milk or by adding ascorbic acid, or both.

Receipts from Sales of Dairy Products and Animals

Fiscal Year	Receipts
1943	$100,490
1944	128,486
1945	128,742
1946	141,451
1947	157,802

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

Item	Obligations 1947	Estimated obligations, 1948	Estimated obligations 1949
Research and Marketing Act of 1946 (Dairy Industry, Agricultural Research Administration):			
(Title I, Sec.10a) Utilization research.	- -	$78,600	- -
(Title I, Sec. 10b) Research, other than utilization research.	- -	120,000	- -
Total	- -	198,600	a/
Special Research Fund, Department of Agriculture, (Bureau of Dairy Industry): For special dairy cattle and dairy products research	$73,880	64,700	$57,200
Penalty Mail Costs, Department of Agriculture (Allotment to Bureau of Dairy Industry): For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress	1,126	1,500	1,615
TOTAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	75,006	264,800	58,815

a/ Allotments under this appropriation for the fiscal year 1949 have not been determined.

PENALTY MAIL ESTIMATE
Sec. 2, Public Law 364, 78th Congress
(Allotment to Bureau of Dairy Industry)

	1947	1948	1949	Increase(+) or decrease(-) 1949 over 1948
Category 1.....	$645	$950	$1,030	+80
Category 2.....	481	550	585	+35
Total	1,126	1,500	1,615	115(1)

(1) The increase of $115 for 1949 is for the purpose of providing additional funds required to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20.00 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

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Category 1 consists of bulletins, leaflets and other technical publications furnished upon request and in answer to questions and problems raised in connection with dairy industry.

Category 2 consists of general administrative correspondence between the Bureau, its field stations, cooperating agencies, and other government agencies and for mailing the documents involved in the business transactions of the Bureau.

BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING

Summary of Appropriations, 1948 and Estimates, 1949

Item	Appropriations 1948	Budget estimates, 1949	Increase (+) or decrease (-)
Salaries and expenses:			
Field crops	a/ 2,650,900	$2,672,300	+$21,400
Fruit, vegetable, and specialty crops	a/ 2,578,100	2,525,500	-52,600
Forest diseases	379,280	380,480	+1,200
Soils, fertilizers, and irrigation	1,466,000	1,604,000	+138,000
Agricultural engineering	637,000	654,000	+17,000
National Arboretum	436,900	413,900	-23,000
Southern Great Plains Field Station	45,600	---	-45,600
Total, direct annual appropriation	8,193,780	8,250,180	+56,400

a/ Reflects $133,100 proposed transfer in the estimates to "Fruit, vegetable, and specialty crops" from "Field crops."

(a) Field Crops

Appropriation Act, 1948	$2,784,000
Proposed transfer in 1949 estimates: To "Salaries and expenses, Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration" fruit, vegetable, and specialty crops	-133,100
Total available, 1948	2,650,900
Budget estimate, 1949	2,672,300
Increase, 1949	+21,400

Note: The proposed transfer of $133,100 to "Fruit, vegetable, and specialty crops" will provide for establishing as separate projects under that subappropriation the work relating to (1) plant introduction, testing, and maintenance of basic stocks, and (2) investigations to reduce crop damages caused by nematodes. This transfer is proposed to clarify and improve the budget presentation of the research program and simplify administration. These changes will not affect, in any way, the scope or character of the work performed.

SUMMARY OF INCREASES AND DECREASES, 1949

For repairs and replacements of water supply systems at two sugar-plant field stations (non-recurring)	+9,400
For replacement of worn-out farm and other equipment (non-recurring)	+48,000
Elimination of non-recurring item provided in the 1948 Act for replacement of worn-out automotive, farm and other equipment	-36,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Cereal production, breeding, disease, and quality investigations	$781,180	$824,820	$824,820	
(a) Barley	(74,865)	(82,640)	(82,640)	
(b) Corn	(180,569)	(191,530)	(191,530)	
(c) Seed flax	(35,841)	(32,380)	(32,380)	
(d) Grain sorghum	(47,442)	(45,540)	(45,540)	
(e) Oats	(45,818)	(53,080)	(53,080)	
(f) Rice	(49,310)	(53,230)	(53,230)	
(g) Wheat and rye	(257,792)	(272,930)	(272,930)	
(h) Weeds	(89,543)	(93,490)	(93,490)	
2. Cotton production, breeding, disease, and quality investigations	453,274	485,070	485,070	
3. Fiber plants other than cotton	61,375	64,530	64,530	
4. Forage crop production, breeding, disease and quality investigations	503,305	544,920	544,920	
(a) Alfalfa	(113,055)	(118,530)	(118,530)	
(b) Clover	(57,072)	(61,360)	(61,360)	
(c) Soybeans	(77,299)	(82,130)	(82,130)	
(d) Lespedeza, cowpea, and miscellaneous legumes	(43,864)	(48,480)	(48,480)	
(e) Hay and pasture grass	(203,107)	(225,350)	(225,350)	
(f) Turf	(8,908)	(9,070)	(9,070)	
5. Rubber production, breeding, and disease investigations	34,630	37,120	37,120	
6. Sugar-plant production, breeding, disease, and quality investigations	435,090	469,480	478,880	+$9,400(1)
(a) Sugar beets	(237,299)	(267,330)	(267,330)	
(b) Sugarcane	(151,955)	(151,700)	(161,100)	
(c) Sugar sorghum	(45,836)	(50,450)	(50,450)	
7. Tobacco production, breeding, disease and quality investigations	179,860	188,960	188,960	
8. Replacement of worn-out equipment	--	36,000	48,000	+12,000(2)

(Continued on next page)

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
9. Repair and reconditioning of physical facilities at field stations and laboratories	70,000	- -	- -	- -
Unobligated balance	14,501	- -	- -	- -
Total available	2,533,215	2,650,900	2,672,300	+21,400
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+1,055	- -	- -	
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act Costs)	-235,000	- -	- -	
Transfer in estimates to "Salaries and expenses, Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration" fruit, vegetable, and specialty crops	+129,030	+133,100	- -	
Total appropriation or estimate	2,428,300	2,784,000	2,672,300	

INCREASES

The net increase of $21,400 for 1949 consists of:

(1) A non-recurring increase of $9,400 under Project 6 for repairs and replacements of water supply systems at sugar plant field stations.

Repairs and replacements of water supply systems are required at two sugar plant field stations as follows:

Houma, Louisiana	$5,000
Meridian, Mississippi	4,400
	9,400

Houma, Louisiana

Installation of a 6-inch water main connecting with the city water system is needed to replace the present 2 1/2 inch main installed about 1929 when the facilities and personnel at the field station were very limited. Buildings, laboratories and greenhouses have been added over the years and the personnel at the station has been considerably expanded. Thestation's facilities are also used by the Bureau of Entomology and Plant Quarantine and the Bureau of Agricultural and Industrial Chemistry. The initiation of sugar cane machinery

investigations at the station in 1945, involving the construction of a laboratory utilized by approximately 8 employees was the most recent addition. The present water supply is inadequate both as to volume and pressure and as a result there is considerable interference with the research activities. This situation can be corrected by replacing the present small pipe with 6 inch pipe. Approximately 1,700 feet will be required, a portion of which must be laid below the bottom of a bayou. The cost is estimated at $5,000 distributed.

Labor (1.4 man-years)	$2,000
Supplies and materials	3,000
	$5,000

Meridian, Mississippi

Installation of a deep-well turbine pump, a pressure water storage tank, auxiliary pump, and related equipment is needed for the water system which is now inadequate. A deep well with an excellent water supply is located at the station. Installation of the equipment and facilities are required for the research program. The work to be performed by contract is estimated to cost $4,400.

(2) A non-recurring net increase of $12,000 under Project 8 for replacement of worn-out farm and other equipment.

Note: This increase is the net difference between the following two non-recurring items both relating to the replacement of worn-out farm and other equipment:

Increase requested for 1949	+$48,000
Elimination of 1948 increase	-36,000
	+$12,000

Increases for this purpose in fiscal year 1949 are requested under this and other subappropriation items as reflected in the tabulation below. The total estimated cost to the Bureau of replacing equipment worn out during the war years when many items could not be purchased and such expenditures were greatly curtailed, is $400,000. As indicated in the tabulation showing the plan for replacement, $100,000 was provided in the 1948 Agricultural Appropriation Act, and the balance of the equipment replacement requirements, $148,000 are being deferred until 1950.

Appropriation	Appropriated 1948	Estimate 1949	Requirements 1950
Field Crops	$ 36,000	$ 48,000	$ 47,000
Fruit, vegetable, and specialty crops	33,700	42,500	48,500
Forest diseases	6,800	8,000	7,000
Soils, fertilizers, and irrigation	23,500	36,500	29,500
Agricultural engineering	--	17,000	16,000
	100,000	152,000	148,000

For brevity and convenience, one justification statement is given at this point, with a tabulation of the items of equipment and locations under each of the appropriation items involved.

Need for Increase: During the war, expenditures by the Bureau for equipment were greatly curtailed.

For the most part, trucks were not available, and many items of farm machinery, laboratory, and other equipment could not be purchased.

The cumulative deficit of equipment purchases by the Bureau since 1940 approximates $676,684, estimated as follows:

Fiscal Year	Actual Obligations a/	Deviation from 1940
1933-39 Ave.	$214,120	--
1940	208,122	--
1941	184,823	-$23,299
1942	117,530	-90,592
1943	65,331	-142,791
1944	49,662	-158,460
1945	107,621	-100,501
1946	122,993	-85,129
1947	156,032 b/	-52,090
1948 (est.)	184,300 c/	-23,822
		$676,684

a/ Based on figures shown in the annual budgets adjusted to reflect the appropriation structure in the 1949 Budget.
b/ Excludes estimated equipment purchases of $100,700 under program increases in the 1947 appropriation.
c/ Excludes $100,000 for equipment purchases under the special projects, "Replacement of worn-out equipment."

This cumulative deficit is substantially in excess of the total replacement requirements which are conservatively estimated at $400,000.

A considerable portion of the present equipment is now badly worn and needs to be replaced for effective conduct of the research work. Because of the prolonged deferment during the war of the purchase of needed equipment, a considerable part is now over-age and is constantly in need of repairs. As a result, there is interference with the conduct of the research work and there is a waste of man-power, both scientific and unskilled. Failure of machine operation, especially in seasonal work, can be very serious to the research program.

Estimated Replacement Requirements:
The total estimate for equipment replacements is conservative because:

1. It is substantially below the indicated cumulative deficit of equipment purchases since 1940 amounting to approximately $676,684.

2. Cost of equipment replacement is now approximately 40% higher than in 1940 as evidenced by the increase in the BAE farm machinery price index from 152 in 1940 to 214 in September 1947.

3. The total replacements of $400,000 represent only 32.5%, and the 1949 replacements of $152,000 only 12.3% of the total Bureau inventory of equipment (exclusive of laboratory equipment and office machines, furniture and equipment) of $1,232,400 as shown by the following tabulation.

Comparison of Estimates for Replacement of Worn-Out Equipment with Total Equipment Inventory at Cost a/

A. Inventory of Equipment at Cost - 6/30/47

Appropriation	Farm Machinery, Processing, and Shop Equipment	Trucks		Passenger Cars		Total
		No.	Cost	No.	Cost	
Field crops ..	$231,300	204	$125,700	53	$ 38,800	$ 395,800
Fruit, vegetable, and specialty crops	126,300	134	73,900	59	40,300	240,500
Forest diseases	2,300	18	14,200	16	13,200	29,700
Soils, fertilizers and irrigation ..	204,100	99	65,900	35	23,100	293,100
Agricultural engineering .	241,900	33	20,100	14	11,300	273,300
	$805,900	488	$299,800	177	$126,700	$1,232,400

B. Estimated Replacements as Percent of Total Inventory a/

	Total Cost of Inventory	Estimate for Replacement - 1949		Total Estimated Replacements F.Y. 1948,1949,1950	
		Amount	Percent of Total Inventory	Amount	Percent of Total Inventory
Field crops	$ 395,800	$ 48,000	12.1	$131,000	33.1
Fruit, vegetable, and specialty crops .	240,500	42,500	17.7	124,700	51.9
Forest diseases ..	29,700	8,000	26.9	21,800	73.4
Soils, fertilizers and irrigation ..	293,100	36,500	12.5	89,500	30.5
Agricultural engineering	273,300	17,000	6.2	33,000	12.1
	$1,232,400	$152,000	12.3	$400,000	32.5

a/Exclusive of laboratory equipment costing approximately $1,519,300, and office machines, furniture and equipment, $1,163,000, total $2,682,300.

Estimated for "Field Crops": The total cost of replacing worn out equipment for "Field Crops" is estimated at $131,000, of which $36,000 was made available for 1948, and $48,000 is estimated for 1949. The following tabulations show the distribution of the 1949 estimate by (a) Items of Equipment, (b) Projects, and (c) States. The replacement of light pick-up trucks represents the largest single replacement item. Such equipment is to be found at practically every field location and its use is essential for the frequent trips to field plots of the Bureau and cooperating agencies to carry equipment, fertilizers, seed supplies, etc. The trucks to be replaced represent 18% of the Field Crops inventory of trucks, will average approximately 11 years of age as of 1949, and will have been driven an estimated average of more than 60,000 miles. Their poor condition and high operating cost make their early replacement particularly necessary. No replacements of passenger cars are being requested under this item for fiscal year 1949.

(a) By items of equipment.

Description	Quantity	Cost
Trucks (mostly ½-ton pick-ups)	38	$38,400
Tractors	3	4,200
Small tractors	2	1,500
Road grader	1	800
Discs	3	1,100
Grain drill with fertilizer attachments	2	800
Mowers, cotton planter, etc.		1,200
		$48,000

(b) By projects.

Cereal production, breeding, disease and quality investigations	$ 7,000
Cotton production, breeding, disease and quality investigations	9,700
Forage crop production, breeding, disease and quality investigations	10,000
Rubber production, breeding, and disease investigations	1,800
Sugar-plant production, breeding, disease and quality investigations	14,500
Tobacco production, breeding, disease and quality investigations	5,000
	$48,000

(c) By states.

Alabama	$ 1,000
Arizona	2,700
California	1,000
Colorado	2,000
Florida	400
Georgia	5,400
Idaho	1,000
Kansas	3,000
Louisiana	4,000
Maryland	1,500
Michigan	1,750
Minnesota	1,000
Mississippi	2,000
Missouri	2,000
Nebraska	3,000
New Mexico	1,300
North Carolina	2,000
Oklahoma	1,000
Oregon	1,750
South Carolina	1,500
Texas	4,700
Utah	2,000
Washington	1,000
Wisconsin	1,000
	$48,000

ITEMIZATION OF ESTIMATES

Appropriation: Field Crops

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$2,784,000	$2,672,300	-$111,700
Reimbursements for services performed	16,600	8,300	-8,300
Total available for obligation	2,800,600	2,680,600	-120,000
Comparative transfer to "Salaries and expenses, Plants Industry, Soils, and Agricultural Engineering, Agricultural Research Administration" fruit, vegetable, and specialty crops	-133,100	--	+133,100
Total obligations (inclusive of reimbursements)	2,667,500	2,680,600	+13,100

Obligations by Objects

Standard Classification				
01	Personal services	2,178,400	2,183,400	+5,000
02	Travel	62,500	61,100	-1,400
03	Transportation of things	14,200	14,000	-200
04	Communication services	5,300	5,400	+100
05	Rents and utility services	15,100	15,000	-100
07	Other contractual services	179,800	183,600	+3,800
08	Supplies and materials	107,500	108,000	+500
09	Equipment	104,700	110,100	+5,400
	Total obligations	2,667,500	2,680,600	+13,100
	Reimbursements for services performed	-16,600	-8,300	
	Total available (exclusive of reimbursements)	2,650,900	2,672,300	

STATUS OF PROGRAM

Current Activities: This appropriation provides for research on the principal farm crops, including corn, cotton, hay, wheat, oats, tobacco, soybeans, sugar beets, and other field crops. These field crops provide the principal part of our food, and our feed and pasture for livestock; our supply of fibers, oils, and other raw materials for industrial uses; and include the most important soil-improving and soil-conserving crops. For the 1947 crop or marketing year, they had a total farm value of approximately $17,300,000,000. The 1949 estimate for this appropriation is less than three hundredths of one percent of such farm value.

The objective of the research program is to increase efficiency and reduce costs of crop production, insure ample and constant supplies of food and feed crops for an increasing population and insure supplies of fibers and other raw materials produced on farms in the quantities and kinds needed for satisfactory industrial uses so as to encourage and support a high standard of living. Attainment of these objectives is sought by

(a) Breeding and selecting improved field crop varieties, high in yield and quality, resistant to disease and other hazards, adapted to different regions and soil types, and superior in handling, nutritional, or technological values.

(b) Developing practical control methods for crop diseases, weeds, and other hazards through the use of fungicides, herbicides, and other materials.

(c) Devising cultural practices giving optimum returns in crop yields and quality at minimum cost.

The research program is conducted in cooperation with State Agricultural Experiment Stations, Federal agencies, farmers, crop-improvement associations, and others. The work consists primarily of field, greenhouse, and laboratory experiments. Because of the diverse problems of each crop, the work is conducted at 98 locations in 37 states. Results of the work are made available to farmers and others through the State and Federal extension services, publications, the agricultural press, and correspondence in reply to direct inquiries.

The benefits of the program cannot be measured exactly, but they have contributed importantly to increased crop yields per acre harvested. The Bureau of Agricultural Economics yield index for 18 principal field crops, using average yield for 1923-32 (pre-drought years) as 100, was 132.2 for 1946 and averaged 130.6 for the five years 1942-46 inclusive. This increase has been of tremendous importance in meeting war and post-war demands.

Important problems receiving emphasis at the present time include

1. The testing, increase, and distribution, of promising new strains of cereal crops which have been developed.

2. The development and testing of new herbicides, chemicals, and

cultural methods for more effective weed control.

3. The breeding of cotton resistant to angular leaf spot (a disease which causes heavy annual losses, especially in the Texas-Oklahoma area). Resistance to this disease has recently been found in a non-commercial strain of cotton, and it is expected that with further breeding work this resistance can be transferred to commercial varieties.

4. The cooperative interstate testing of new, improved varieties of clovers, grasses, and legumes.

5. The development of improved sugar beet varieties to facilitate mechanized cultural operations, including research on the development of single germ seed.

6. The breeding of improved, disease-resistant sugarcane varieties especially adapted for machine harvesting.

7. The breeding of tobaccos with multiple disease resistance and high quality.

Example of Recent Progress: The following examples of progress are illustrative of the many accomplishments in this broad field during the past year:

1. Several new corn hybrids were released in cooperation with State Agricultural Experiment Stations. Characteristics of earlier maturity, higher yield, lower moisture content at maturity, or other superior qualities provide greater assurance of good corn crops, especially with short growing seasons.

2. New oat varieties resistant to the relatively new and destructive Helminthosporium blight have been rapidly increased and distributed in the North Central States.

3. A new cotton variety, Acala 4-42, developed at the Shafter, California, field station, should do much to enhance the reputation of irrigation-grown cotton. In 1946 tests, it produced yarn that was 10 percent stronger than the average of all the strains and varieties (including rain grown) tested.

4. Two new species of Crotolaria non-poisonous to livestock have been developed for use as a green manure and cover crop in the South. For many years, Crotolaria spectabilis has been widely planted, but it is poisonous to livestock. The two new species are nematode resistant and may also be planted for pasturage or silage in areas of such low soil fertility that the use of other forage crops is not profitable.

5. Rubber breeding tests with Hevea to develop disease-resistant stock for use in the American tropics were resumed in Florida after being interrupted by a 1945 hurricane which damaged the breeding stock. It has been found that by cutting back large seedling trees and allowing as many as four shoots to develop, top-working is easily accomplished and flowers can be obtained within 1 or 2 years as compared with 4 or 5 years required to bring normally budded trees into flower.

6. A new sugarcane variety, C.P. 36/13, was released in the fall of 1946 for commercial culture, primarily in Louisiana. Favorable characteristics include improved resistance to mosaic and red rot, higher sugar yield per ton of cane and per acre, adaptability for mechanical harvesting, and resistance to inversion of sucrose when windrowed or otherwise stored for milling.

7. A new high-quality sugar beet variety, U. S. 35, has been released for the West. It is not only curly-top resistant, but is distinctly superior to U. S. 22/2 in sugar percentages. A season such as 1946, unfavorable for sugar production, focusses attention on the need for high sugar types for districts where sucrose percentages of the beets tend to be low.

8. Considerable progress has been made toward breeding wildfire resistant tobacco. After years of effort, a highly wildfire resistant species related to the common cultivated tobacco was successfully crossed with the latter and two plants were secured that produced seed, of which one yielded seedlings that carried wildfire resistance. This plant has been the basis for a breeding program to establish wildfire resistance in all types of tobacco. The resistance has been bred into new strains which are not only free from wildfire injury from the earliest seedbed to the latest field stage, but are also more vigorous growing than either parent. These strains will be the basis for final development into commercial varieties, and the seed has been sent to breeders at the Bureau's field stations and at cooperating state experiment stations for incorporating wildfire resistance into the various commercial tobacco varieties.

(b) Fruit, Vegetable, and Specialty Crops

Appropriation Act, 1948	$2,445,000
Proposed transfer in 1949 estimates:	
From "Salaries and expenses, Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration" field crops (see explanation under "Field crops")	+133,100
Total available, 1948	2,578,100
Budget estimate, 1949	2,525,500
Decrease, 1949	-52,600

SUMMARY OF INCREASES AND DECREASES, 1949

For mushroom production and disease investigations	+10,000
For breeding high quality disease-resistant varieties of hops, and developing improved disease control methods and production practices	+18,000
For replacement of worn-out farm and other equipment (Non-recurring)	+42,500
For painting and repairing buildings and greenhouses at Plant Industry Station (non-recurring)	+90,600
Elimination of non-recurring item provided in 1948 for replacement of worn-out automotive, farm and other equipment	-33,700
Elimination of non-recurring item provided in 1948 for repair and installation of utilities at Plant Industry Station	-180,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Deciduous fruit investigations	$392,870	$414,840	$414,840	- -
2. Citrus, avocado, and other subtropical investigations	142,060	148,400	148,400	- -
3. Nut investigations	277,900	294,290	294,290	- -
4. Vegetable investigations	417,728	463,910	473,910	+10,000(1)
5. Potato investigations	122,810	136,710	136,710	- -
6. Plants for landscaping and ornamental purposes and for farm windbreaks, investigations of	193,040	208,050	208,050	- -
7. Methods of handling, transportation, and storage, and market diseases of fruits and vegetables, investigations of	305,550	313,400	313,400	- -

(Continued on next page)

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
8. Drug, oil, insecticide, raticide, tannin, flavoring, and special product plant investigations	68,760	72,080	72,080	- -
9. Hop production, breeding, disease, and quality investigations	11,680	13,040	31,040	+18,000(2)
10. Plant introduction, testing and maintenance of basic stocks	201,016	225,710	225,710	- -
11. Investigations to reduce crop damage caused by nematodes .	66,520	73,970	73,970	- -
12. Replacement of worn-out equipment	- -	33,700	42,500	+8,800(3)
13. Paint and repair buildings and greenhouses at Plant Industry Station	- -	- -	90,600	+90,600(4)
14. Repair and installation of utilities at Plant Industry Station	- -	180,000	- -	-180,000(5)
15. Repair and reconditioning of physical facilities at field stations and laboratories	163,400	- -	- -	- -
Unobligated balance	10,644	- -	- -	- -
Total available	2,373,978	2,578,100	2,525,500	-52,600
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+352	- -	- -	- -
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act Costs)	-175,000	- -	- -	
Transfer in estimates from "Salaries and expenses, Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration", field crops	-129,030	-133,100	- -	
Total appropriation or estimate	2,070,300	2,445,000	2,525,500	

INCREASES OR DECREASES

The net decrease of $52,600 for 1949 consists of:

(1) An increase of $10,000 under Project 4 for mushroom production and disease investigations.

Objective: To investigate and control mushroom diseases, improve cultural practices including the development of artificial compost, and develop new and improved strains of mushrooms.

The Problem and Its Significance: The production of mushrooms is an important national agricultural industry. Annual production has increased from approximately 17,000,000 pounds in 1928 to 60,000,000 pounds in 1946. The annual value is now around $20,000,000. This compares with the 1946 estimated farm value uf such other crops as cauliflower, $18,000,000; watermelons, $31,100,000; cranberries, $24,700,000; green lima beans, $9,700,000; and tung nuts, $4,700,000. Mushrooms are produced in about 35 states, the more important producing states being Pennsylvania, New York, Ohio, Delaware, Maryland, Illinois, Minnesota, Missouri, Michigan, and Washington. About 14,000 are employed in the industry.

The research problems needing attention include

(a) Study and control of mushroom diseases which cause crop losses approximating 20 percent annually. The more important diseases are the Truffle disease, mummy disease, verticillium spot disease, and verdigris disease.
(b) The development of satisfactory and economical artificial composts. Gradual reduction in the supply of horse manure and its increased cost has made this one of the industry's major problems.
(c) The development of improved cultural practices to reduce production costs.
(d) The development of new and non-competitive phases of the industry such as the culture of fungi other than the commercial mushroom, including the morel, Truffles, Oriental straw mushroom, and the shaggy mane mushroom.

Present funds are inadequate. During the period 1928 through 1944, a small mushroom research project was operated, and an experimental mushroom house was built at the Plant Industry Station. Because of the war and a reduction of funds, the work was discontinued. The Senate Appropriations Committee in its report on the Agricultural Appropriation Bill, 1948, suggested that the Bureau resume work on the project. For fiscal year 1948, $10,000 has been allocated from other important lines of work for mushroom investigations. Since the mushroom house was never operated after its completion, most of the 1948 funds will be required for the installation of temperature and moisture control equipment and the purchase of supplies, etc. necessary for the resumption of operations. In 1949 these funds will be available for the salary of a project leader, and for part of the operating expenses, but will be inadequate to support the project.

Plan of Work: Experimental work with the more threatening of the diseases of the cultivated mushroom and detailed studies in new composting methods, manure substitutes, and other cultural practices will be conducted at Plant Industry Station, Beltsville, Maryland, and cooperative work will be carried on with experienced growers throughout the country. Studies initiated prior to 1944 of the various fungi desirable for commercial production will be resumed. The increase of $10,000 will be necessary for the satisfactory conduct of the investigations.

(2) An increase of $18,000 under Project 9 to expand the program for breeding high quality, disease-resistant varieties of hops and to develop improved disease control methods and production practices.

Objective: To stabilize hop production by breeding improved, disease-resistant varieties or types of hops adapted for growing in the different hop-producing regions, and by developing field practices that will yield hops of quality equal or superior to imported hops.

Need for Increase: Present funds available for hop production, breeding, disease, and quality investigations are inadequate. The 1948 allotment for the investigations, which are conducted in cooperation with the Oregon Agricultural Experiment Station, is $13,040. These funds provide a small research staff, and limited operating expenses for the maintenance of the experimental hop yards at Corvallis, Oregon. Similar small allotments have been available for the project for the past 15 years. It has been possible to collect almost all the hop varieties of the world for testing and breeding improved varieties. Breeding technics have been developed, and a large number of crosses have been made. Hop breeding is a slow process, however, because only the female plant produces hops and, except for some information on disease resistance, the qualities of the male parent can be evaluated only through production from female offspring. The project has now reached the stage where the breeding program should be intensified to provide for the adequate regional testing of the promising new strains under different soil and climatic conditions and under different methods of production to determine their disease reaction, quality, and adaptation to various growing conditions. Such expansion is required to serve the urgent needs of hop growers and to realize on the benefits of progress and expenditures to date. This cannot be done with the funds now available, which increasingly are required for the maintenance of the present breeding collection.

The importance of the hop industry in several states and its serious production problems justifies increased federal support for these investigations. Hops produced in the United States during the five years from 1942 through 1946 had an average annual farm value of approximately $29,000,000. The farm value of the 1946 crop was estimated at $34,000,000. The three principal hop growing states, in order of 1946 production, are:

Washington	19,720,000 pounds
Oregon	18,800,000 pounds
California	14,651,000 pounds

There has also been renewed activity in hop growing in New York. Throughout these hop growing areas, the producers need assistance with important problems.

(a) Control of the downy mildew disease which in some years practically eliminates the crop in certain areas, is greatly needed. The disease is a major factor in causing average yields for the United States to vary from 816 to 1379 pounds per acre during the past 10 years. During the season of 1947 it is estimated that the disease caused a loss to Oregon growers of $5,000,000. The development of disease-resistant varieties is the most promising solution to this problem.

(b) Improved quality is needed to meet the competition of imported hops. Prior to the war, American brewers annually imported around 8,000,000 pounds of European hops because of certain qualities allegedly not available in domestic hops. More recently, seedless hops have supplied this demand but seedless hops are low yielding. An important goal of the breeding investigations should be the development of varieties of superior quality to supply the demand for the seedless hops formerly imported.

(c) Improvement of production practices is needed to increase yields and lower costs. The maintenance of hop yards is now a very costly operation.

Plan of Work: The central breeding program to develop disease-resistant varieties of superior quality will be expanded. Selections of the promising new strains will be tested with different soils, cultural practices and growing conditions not only in Oregon, but also in Washington and California. The program will continue to be headquartered at Corvallis, Oregon in cooperation with the Oregon Agricultural Experiment Station. The field trials will be conducted in cooperation with the State experiment stations of Washington and California.

(3) A non-recurring net increase of $8,800 under Project 12 for replacement of worn-out farm and other equipment.

Note: An overall statement in justification of the increases for equipment replacement is included in the explanatory notes for the "Field Crops" appropriation. Thus the notes are limited here to details applicable to this appropriation.

This increase is the net difference between the following two non-recurring items, both relating to the replacement of worn-out farm and other equipment.

Increase requested for 1949	+$42,500
Elimination of 1948 increase	-33,700
Net increase	+8,800

Equipment replacements in 1949 of $42,500 would represent about 17.7% of the total cost of the equipment inventory under this subappropriation exclusive of laboratory equipment and office machines, furniture,

and equipment. Constant trips during the growing season to orchards and field plots, carrying equipment and supplies, make light trucks a particularly important item of equipment. The trucks to be replaced represent 19% of the truck inventory under this subappropriation, will average over 11 years of age as of 1949, and will have been driven an estimated average of over 65,000 miles. Not only are there high repair costs, but the frequent breakdowns of this and other items of equipment listed for replacement severely handicap the research work. The equipment replacements for 1949 would be distributed approximately as follows:

(a) By items of equipment.

Description	Quantity	Cost
Trucks (mostly ½-ton pick-up)	24	$24,600
Heavy duty tractors	2	3,000
Garden tractor	1	600
Root digger	1	800
Sprayer	1	1,400
Rototiller	1	600
Power lawn mowers	2	900
Check ridger	1	450
Fertilizer spreader	1	350
Plow	1	300
Fruit washing machine	1	3,100
Refrigerator compressors	2	4,000
Oil burners	2	2,100
Heating boilers	2	300
		$42,500

(b) By projects.

Deciduous fruit investigations	3,500
Citrus, avocado, and other subtropical fruit investigations	2,000
Nut investigations	8,400
Vegetable investigations	7,000
Potato investigations	1,000
Investigations of plants for landscaping and ornamental purposes and farm windbreaks	2,000
Methods of handling, transportation and storage, and market diseases of fruits and vegetables	7,100
Hop production, breeding, disease, and quality investigations	2,500
Plant introduction, testing, and maintenance of basic stocks	9,000
	$42,500

(c) By states.

California	$2,800
Florida	8,100
Georgia	4,200
Louisiana	3,500
Maryland	12,200
Mississippi	2,900
Oregon	1,000
Texas	3,800
Utah	1,000
Wisconsin	1,000
Wyoming	2,000
	$ 42,500

(4) A non-recurring increase of $90,600 under Project 14 for painting and repairing buildings and greenhouses at Plant Industry Station.

Need for increase: The buildings and greenhouses at Plant Industry Station were constructed mostly during the period 1935-1943 at a cost of approximately $3,445,000. These facilities include:

	Approximate Cost
7 laboratory and office buildings (two of which are connected with the Administration Building)	$2,047,000
3 ranges of greenhouses having a combined area under glass of approximately 4.4 acres	875,000
Heating plant and service buildings	523,000
	3,445,000

In addition, there are 15 residences for which rentals are charged.

Painting and repairs during the war years were greatly restricted because of shortages of labor and materials; also during the comparatively early life of the buildings they were not as essential. Now the buildings and greenhouses are greatly in need of painting to preserve them. The interiors of some buildings have not been painted since 1935 and most of the greenhouses have not been painted since they were constructed. Heating coils in the greenhouses have deteriorated to the extent that repairs and replacements are very necessary to assure continued satisfactory utilization of greenhouse space. Greenhouse benches have rotted and need to be replaced or repaired. Structural parts supporting the glass in greenhouses are failing and repairs or replacements are necessary. Other miscellaneous repairs are required, such as minor plumbing repairs, roof repairs, etc.

The repairs and painting are needed to

(a) Protect government property from excessive deterioration.

(b) Assure continued effectiveness of important research work. Failure of heating coils, lack of greenhouse benches, or operating failures due to other needed repairs can seriously interfere with the work.

(c) Improve the appearance of this important government center of agricultural research which is visited annually by thousands, including visiting officials from other agencies, foreign governments, and state agencies, county agents, cooperating research workers, farmers, and the public generally.

Financial Requirements: The cost of the necessary painting and repairs are estimated as follows:

Paint North and South wing of Administration Building	$22,200
Paint West Building	8,900
Paint greenhouses and headhouses, Range 2	12,000
Replace and repair worn-out greenhouse benches	26,500
Replace or repair heating coils in greenhouses	17,300
Install additional bracing in greenhouses and make other miscellaneous repairs	3,700
	$90,600

(5) A decrease of $180,000 under Project 13 due to the elimination of the non-recurring item provided in 1948 for the repair and installation of utilities at Plant Industry Station.

CHANGES IN LANGUAGE

The estimates propose deletion of the following language of this item (deleted matter enclosed with brackets):

* * * [and there shall be transferred to the Bureau of Plant Industry, Soils, and Agricultural Engineering, from Government surplus without compensation therefor, one sixty-five acre tract occupied by the United States Plant Introduction Garden under permit from the War Department and two adjacent small parcels of land, totaling in all approximately seventy-seven acres, situated at Chapman Field Military Reservation, Dade County, Florida, and valued (procurement cost) at approximately $7,000] * * *.

This change deletes language relating to a non-recurring provision inserted in the Department of Agriculture Appropriation Act, 1948, for the procurement from government surplus of land situated at Chapman Field Military Reservation, Dade County, Florida, and needed for use by the United States Introduction Garden.

ITEMIZATION OF ESTIMATES

Appropriation: Fruit, vegetable, and specialty crops

Funds Available for Obligation

Item	Estimates, 1948	Budget estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$2,445,000	$2,525,500	+$80,500
Reimbursements for services performed	3,100	3,100	- -
Total available for obligation	2,448,100	2,528,600	+80,500
Comparative transfer from "Salaries and Expenses, Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration", field crops	+133,100	- -	-133,100
Total obligations (inclusive of reimbursements)	2,581,200	2,528,600	-52,600

Obligations by Objects

Standard Classification			
01 Personal services	$1,870,300	$1,902,500	+$32,200
02 Travel	45,100	46,300	+1,200
03 Transportation of things	11,000	8,500	-2,500
04 Communication services	5,800	5,900	+100
05 Rents and utility services	15,500	16,900	+1,400
07 Other contractual services	473,200	378,300	-94,900
08 Supplies and materials	97,700	92,100	-5,600
09 Equipment	62,600	78,100	+15,500
Grand total obligations	2,581,200	2,528,600	-52,600
Reimbursements for services performed	-3,100	-3,100	
Total available (exclusive of reimbursements)	2,578,100	2,525,500	

STATUS OF PROGRAM

Current Activities: This appropriation provides for research on the production and improvement of fruit, vegetable, nut, ornamental, and specialty crops; on market diseases of fruits and vegetables and methods for their handling, processing, transportation, and storage; on plant introduction, testing, and maintenance of basic stocks; and on the control of nematodes causing crop damage. The crops include the great health protectors in our diet as well as highly important staple food sources. For the 1947 crop or marketing year, they had a total farm value in excess of $3,100,000,000.

The objective of the research program for these crops is to increase efficiency and reduce costs of production, insure ample and constant supplies for an increasing population, and encourage and support a high standard of living. Attainment of these objectives is sought by

(a) Breeding and selecting improved varieties, high in yield and quality, resistant to disease and other hazards, superior in marketing and nutritional qualities, and adapted to different regions and soil types.

(b) Developing more efficient production practices, including fertilization, cultivation, pruning, spraying, and harvesting, to give optimum returns at minimum cost.

(c) Developing effective and economical methods for controlling diseases, nematodes and other production hazards through the use of fungicides, nematocides, herbicides, and other materials.

(d) Devising the most efficient and economical methods of packing, shipping, and storing fresh produce to provide for its delivery in prime condition to the ultimate consumer.

(e) Introducing new plants and strains from all parts of the world by exploration, exchange, or purchase, and testing and propagating selections for use in breeding superior varieties which are valuable as new crops.

The research program is conducted in cooperation with State agricultural experiment stations, other Federal agencies, growers, shippers, and others. The work consists primarily of field, laboratory, greenhouse, and storage experiments. Because of the diverse crops and wide range of climatic and soil conditions, the work is conducted at approximately 80 locations in 32 states and one foreign country. Results of the work are made available to growers, shippers, and others through the Federal - State extension services, the agricultural press, publications, and correspondence in reply to direct inquiries. Cooperative arrangements are made for the rapid testing, increase, and distribution of seeds or propagating stocks of new improved varieties.

The program has benefited growers, marketers, and consumers. It has contributed importantly to increased yields per acre harvested. For example, the Bureau of Agricultural Economics yield index for 10 fruit crops, using 1923-32 average yield as 100, was 163.8 for 1946 and average 144.8 for the five years 1942-46 inclusive. Similarly,

the yield of potatoes has increased from a 1923-32 average of 112 bushels per acre to 184 bushels for 1946, or 64% and 149 bushels for the five years 1942-46 inclusive, or 33%. Many of our important crops are the direct results of plant introductions from foreign countries. In addition, these introductions are the continuing source of new strains for breeding improved varieties. The development of better methods of handling, transportation, and storage of fruits and vegetables have contributed importantly to reducing costs and improving the quality and variety of the consumers food supply.

Important problems receiving emphasis at the present time include

1. The testing for effectiveness and practical use of new fungicides, growth-regulating substances, fruit-thinning sprays, and other chemicals becoming increasingly available to fruit growers.
2. The study of the toxicological effects of DDT accumulations in the soil upon crops.
3. The study of tristeza, a serious disease threatening the citrus industry, and the development of effective control methods and disease resistant rootstocks and varieties.
4. The study of the relation of various fertilizer practices and of mineral deficiencies in soils to the production of pecan, walnut, and other nut crops.
5. The breeding and testing of improved disease-resistant vegetable varieties.
6. The development of methods for controlling diseases affecting vegetable seed crops.
7. The breeding of improved, disease-resistant ornamentals, especially lilies, carnations, snap-dragons, azaleas, chrysanthemums, and gladiolus.
8. The improvement of protective services in shipping fruits and vegetables through study and testing of equipment, car design, and temperature control methods.
9. The development of new techniques for mass inoculation and testing of new seedling hop varieties for mildew-resistance.
10. The testing of new chemicals and methods being developed for the control of nematodes.

Examples of Recent Progress: The following examples of progress are illustrative of the many accomplishments in this field during the past year:

1. Two new strawberry selections have been developed which are highly resistant to the red stele root disease. The breeding of resistant varieties has been the only hope for growers who have land infected with the disease.
2. Two of the newer orchard sprays, Fermate, and to a lesser extent Zerlate, have been found very effective in controlling pear scab in the Hood River Valley of Oregon. Their use is estimated to have increased pear production in this area alone by approximately 400,000 boxes annually.

3. Pecan orchards will produce more consistently uniform crops of well filled nuts where the orchards have received rather heavy applications of phosphorous and especially potassium as well as moderate applications of nitrogen. Heavy nitrogen fertilizer applications appear to be at least partially responsible for the biennial bearing of pecan trees and the poor filling of the nuts produced.
4. Calred, the first downy-mildew resistant onion, was released to seedsmen in 1947. It was developed in cooperation with the California Agricultural Experiment Station and is an intermediate variety, highly non-bolting, with a deep red bulb color and mild flavor.
5. A new, two-season potato variety, Marygold, has been developed for growing on the Eastern Shore of Maryland. It usually outyields Irish Cobbler in the spring crop. In addition seed tubers harvested from the spring crop can be treated to break the rest period and planted for a fall crop. It then usually outyields Dakota Red, the standard fall variety. The seed stock of Dakota Red must be held in cold storage from fall until the following July.
6. Twelve new tetraploid snapdragons have been developed through continued investigations on inducing polyploidy by the use of colchicine. All have larger flowers of better substance and the color range includes white, pink, red, yellow, and bronze.
7. Better methods of protection of fruits and vegetables in transit have been developed. Largely as the result of tests conducted on over 250 carloads of fruits and vegetables moving under various kinds of refrigeration, ventilation, or heater service, all new refrigerator cars now being built will be equipped with fans, which will circulate the air and maintain a more uniform car temperature.
8. The breeding of hybrid peppermint and spearmint varieties which will be resistant to the destructive Verticillium wilt disease is now showing progress. The problem of self-sterility in peppermint has been overcome by colchicine treatments which produces fertile plants with a new chromosome composition.
9. Approximately 4,200 plant introductions were made in fiscal year 1947 as compared with 1,500 in 1946. The most important groups were sugar plants (mostly sorghums), 1,573; cereals, 1,270; forage plants, 374; peanuts, 66; and many drug and oil plants. During 1947, approximately 69,000 plants were despatched within the country, and 20,500 to foreign addresses.
10. Control of nematodes by soil fumigation treatments of the planting sites for young peach trees increased the first crop year yields more than eight times those of trees planted as untreated controls.

(c) Forest Diseases

Appropriation Act, 1948	$379,280
Budget estimate, 1949	380,480
Increase, 1949	+1,200

SUMMARY OF INCREASES AND DECREASES, 1949

For replacement of worn-out field and other equipment (non-recurring)	+8,000
Elimination of non-recurring item provided in 1948 for replacement of worn-out equipment	-6,800

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Diseases of forest and shade trees and forest products:				
(a) Diseases that affect timber stands, reduce lumber production, and influence logging operations	$132,710	$142,550	$142,550	- -
(b) Diseases of young natural stands and plantations	74,570	37,000	37,000	- -
(c) Forest nursery diseases	3,470	3,720	3,720	- -
(d) Decays and disease defects of lumber and other forest products	86,724	79,160	79,160	- -
(e) Diseases of street and shade trees	90,630	95,130	95,130	- -
(f) Diseases of trees in National Parks, parkways, recreational areas of the National Forests, and other public undertakings	13,640	14,920	14,920	- -
2. Replacement of worn-out equipment	- -	6,800	8,000	+$1,200 (1)
Unobligated balance	5,821	- -	- -	- -
Total available	407,565	379,280	380,480	+1,200
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+35	- -	- -	
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (forpay act costs)	-36,100	- -	- -	
Total appropriation or estimate	371,500	379,280	380,480	

INCREASE

The increase of $1,200 for 1949 consists of:

(1) A non-recurring net increase of $1,200 under Project 2 for replacement of worn-out field and other equipment.

Note: An overall statement in justification of the increases for equipment replacement is included in the explanatory notes for the "Field Crops" appropriation. Thus the notes are limited here to details applicable to this appropriation.

This increase is the net difference between the following two non-recurring items, both relating to the replacement of worn-out field and other equipment:

Increase requested for 1949	+$8,000
Elimination of 1948 increase	-6,800
Net increase	1,200

Equipment replacements in 1949 of $8,000 would represent about 26.9% of the total cost of equipment inventory under this subappropriation, exclusive of laboratory and office equipment. The work on forest disease investigations requires frequent trips from the various field headquarters to the National Forests, National Parks and other forested areas. Light trucks which can carry miscellaneous field equipment and supplies are an important item. The six light trucks to be replaced will average approximately 11.7 years of age as of 1949 and will have been driven an estimated average of over 68,000 miles. High repair costs and poor operating condition of this and other items of equipment listed for replacement are handicaps to the research work. The replacements in 1949 would be distributed approximately as follows:

(a) By items of equipment.

Description	Quantity	Cost
Trucks (sedan delivery)	6	$6,000
Garden tractor	2	800
Water pump	1	300
Increment borers (10), jointer (1) and miscellaneous equipment		900
		$8,000

(b) By states.

California	$ 300
Georgia	1,600
Maryland	2,250
New Mexico	1,000
North Carolina	450
Oregon	1,000
Wisconsin	1,000
Ohio	400
	$8,000

ITEMIZATION OF ESTIMATES

Appropriation: Forest Diseases

Funds available for obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$379,280	$380,480	+$1,200
Reimbursements for services performed	12,500	12,500	- -
Total obligations (inclusive of reimbursements)	391,780	392,980	+1,200
Obligations by Objects			
Standard Classification			
01 Personal services	$316,300	$318,000	+$1,700
02 Travel	15,500	15,500	- -
03 Transportation of things	1,700	1,700	- -
04 Communication services	900	900	- -
05 Rents and utility services	3,100	3,100	- -
07 Other contractual services	22,600	21,800	-800
08 Supplies and materials	16,180	15,680	-500
09 Equipment	15,500	16,300	+800
Grant total obligations	391,780	392,980	+1,200
Reimbursements for services performed	-12,500	-12,500	
Total available (exclusive of reimbursements)	379,280	380,480	

STATUS OF PROGRAM

Current Activities: Governmental responsibility for conducting investigations of diseases of trees and forest products is centralized under this appropriation. Accordingly, the Forest Service and National Park Service depend on the Bureau for the development of methods for avoiding or controlling diseases on the millions of acres of national forests and national parks; the Soil Conservation Service depends on it for methods of controlling diseases in nurseries and erosion control plantings; and State agencies, municipalities, and private owners depend on it for assistance in the control of diseases of shade trees, forests, and forest products. Losses from disease constitute one of the largest drains on forest resources and approach or exceed the losses from fire.

The objective of the research program is to increase the value of forest and shade trees and forest products by (1) identifying forest diseases and determining their life cycles, including alternate host plants, if any, (2) developing effective and economical disease control methods and management practices for use with forest, shade, ornamental and nursery trees which will prevent or reduce losses from disease, (3) developing treatments which will prevent decay in lumber and wood products, (4) improving methods of inspection and grading to avoid deteriorated wood without needless rejection of valuable material, and (5) breeding, selecting, and testing tree varieties resistant to specific diseases.

The research program is conducted through identification of diseases in the field and the evaluation of the extent and severity of disease damage, controlled field tests, and laboratory investigations. The work is conducted in cooperation with the Forest Service, Soil Conservation Service, Bureau of Entomology and Plant Quarantine, National Park Service, State experiment stations, municipalities, nurserymen, and others from 14 field locations. Results of the work are made available through direct contact, publications, the press, and correspondence in reply to inquiries.

Benefits of the program include the development of methods which enable lumbermen to avoid losses from sapstains, prevent the damping-off disease in forest nurseries, provide the basis for conducting white pine blister rust control programs, and prevent losses from many other forest diseases. The annual savings can be measured in millions of dollars.

Important problems receiving emphasis at the present time include

1. Investigations to control little-leaf disease of pine in the South.
2. Breeding, selecting, testing, and propagating blight resistant chestnuts.
3. Development of control methods for fusiform rust of southern pine.
4. Development of control methods for a deadly root disease affecting hard southern pines in forest nurseries.
5. Development and testing of improved wood preservatives.
6. Selecting, breeding, and testing elms resistant to Dutch elm disease, and phloem necrosis, and mimosas resistant to mimosa wilt.
7. Investigations on control of diseases of trees in National Parks and recreational areas of National forests.

Examples of Recent Progress: The following examples illustrate accomplishments in this field during the past year:

1. Copious gum flow from turpentine pines can be obtained by applying the pine pitch-canker fungus, Fusarium lateritium, to the cuts. Application of the fungus has resulted in a sustained high rate of gum flow for several weeks without rewounding. Recent tests on standard turpentining faces have indicated that over restricted periods a single inoculated streak may produce as much gum as weekly chipped untreated faces, or biweekly chipped faces to which sulfuric acid has been applied.

2. New strains of chestnut trees, produced by hybridizing blight resistant Chinese chestnuts with American chestnuts, have given encouraging results when tested for blight resistance by inoculation methods. Some of the hybrid trees are now 15 years old. Approximately 200 such hybrid trees have been distributed during the past 2 to 4 years to test-sites in Maryland and Pennsylvania. The development of resistant varieties is needed to assure an adequate domestic source of tannin. At present over three-fourths of our production of vegetable tannin comes from the steadily diminishing stock of native chestnut already killed by blight.

3. A serious walnut and butternut disease causing systemic brooming recently has been determined to be a virus disease. Both black and Japanese walnut are susceptible but the latter is much more seriously affected. The diseased trees are retarded in growth and some die. To insure planting stock free of the disease, only healthy trees should be used as sources of budding or grafting material.

4. Seven sugar pine trees resistant to white pine blister rust have been discovered in a planting in northwest Oregon. These trees are all that remain of 242 planted 14 years ago in a test plot located where infection of sugar pine and other susceptible white pines was exceedingly heavy. These seven trees can be used as breeding and propagating material for the production of strains and clones of resistant stocks, the use of which should eventually reduce the heavy losses from blister rust. Rust-resistant white pines have also been discovered in the East and these are being tested as sources of disease-resistant planting stock.

5. Mimosa wilt, a new disease, has spread rapidly during the past 10 years and is now known to occur from Washington, D. C., to south Georgia. Thousands of valuable street and ornamental mimosas have been killed. With funds made available in fiscal year 1947, work has been initiated on the development of practical control through selection, testing, and propagation of strains of mimosa resistant to the disease. Seed has been collected from 20 resistant parent trees and 900 seedlings are undergoing tests to determine whether the resistance factor is carried through the seed. A number of cuttings have been rooted from the resistant trees and are showing resistance in the current tests. Methods of spread are being studied to determine possible control measures for existing trees. Since it is known that the disease enters through the roots, soil disinfection experiments have also been initiated.

(d) Soils, Fertilizers, and Irrigation

Appropriation Act, 1948	$1,466,000
Budget estimate, 1949	1,604,000
Increase, 1949	+138,000

SUMMARY OF INCREASES AND DECREASES, 1949

For soil management investigations on newly irrigated lands in the Lower Colorado River and Columbia Basin projects	+80,000
To develop and evaluate slow acting, high analysis, synthetic nitrogen fertilizers	+45,000
For replacement of worn-out farm and other equipment (non-recurring)	+36,500
Elimination of non-recurring item provided in 1948 Agricultural Appropriation Act for replacement of worn-out automotive, farm and other equipment	-23,500

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Soil improvement, management, and irrigation investigations	$700,294	$743,420	$823,420	+$80,000(1)
(a) Management of soils of the humid region	(19,340)	(19,570)	(19,570)	- -
(b) Management of soils of the dry-land region	(227,145)	(264,910)	(264,910)	- -
(c) Management of soils under irrigation	(301,729)	(316,000)	(396,000)	- -
(d) Basic soil plant relationships, including tilth, moisture, fertility, and soil organisms	(152,080)	(142,940)	(142,940)	- -
2. Fertilizers and their improvement	219,060	172,140	217,140	+45,000(2)
3. Soil classification for crop production	515,921	526,940	526,940	- -
4. Replacement of worn-out equipment	- -	23,500	36,500	+13,000(3)

5. Repair and recondi-				
tioning of physical				
facilities at field				
stations	49,200	--	--	--
Unobligated balance	12,229	--	--	--
Total available	1,496,704	1,466,000	1,604,000	+138,000
Transferred to "Sala-				
ries and expenses,				
Office of Informa-				
tion, Department of				
Agriculture"	+176	--	--	
Transferred from "Ex-				
portation and domes-				
tic consumption of				
agricultural commod-				
ities, Department of				
Agriculture" (for				
Pay Act Costs)	-141,880	--	--	
Total appropria-				
tion or estimate	1,355,000	1,466,000	1,604,000	

INCREASES

The net increase of $138,000 for 1949 consists of:

(1) An increase of $80,000 under Project 1 for soil management investigations on newly irrigated lands in the Lower Colorado River and Columbia Basin projects.

Need for Increase: There is need to increase the rate of obtaining experimental soil management, irrigation, and crop production data applicable to the vast new irrigated areas which are being opened for settlement. More than 1,000,000 acres are to be irrigated in the Columbia Basin project from the Grand Coulee Dam. Approximately 1,000,000 acres eventually will be developed also in the Lower Colorado River Basin. Water released from Boulder Dam will provide a substitute supply for more than 500,000 acres in the Imperial Valley and for 80,000 acres in the Coachella Valley (Calif.) projects, and for the potential irrigation of around 500,000 acres of new land in California and Arizona outside of the Imperial and Coachella Valleys. Soil and climatic conditions vary greatly with these areas and there are many new problems which require investigation and solution in order that the farming operations may be successful.

The Government has a huge capital investment in the development of these projects. For example, the Grand Coulee Dam project is estimated to cost $624,500,000 of which $377,000,000 is allocated to the cost of the Columbia River Basin irrigation system. The ability of settlers to repay the costs of construction will depend upon the establishment of a productive and profitable agricultural industry. The Department of Agriculture has the direct responsibility of aiding farmers to solve the agricultural problems peculiar to these regions and to protect new settlers against failures. The earlier these problems can be solved, the better for the

agricultural development and the less the distress from farm failures. The Bureau of Reclamation, which is directly concerned with the success of the projects, has provided "predevelopment farm units" and other facilities in the new areas for farm demonstrational purposes and these are available for the needed soil management investigations.

Research already initiated in these areas indicates the benefits which can be expected. In the Columbia River Basin where yields of corn have averaged about 50 bushels per acre, adequately designed fertility studies with increased supplies of nitrogen and water in proper balance produced yields of 130 bushels per acre, whereas addition of nitrogen fertilizers alone increased yields only slightly and use of additional irrigation water resulted in little or no increase in yields. In similar experiments, potato yields were increased from 355 to 615 bushels per acre. In the Lower Colorado River Basin where alfalfa is one of the most important crops, research on fertilizers and irrigation has shown that it is possible to increase yields to 10 tons per acre, or twice the average yield of the area. There is promise of the area developing into an excellent section for the production of winter vegetables.

Crop production investigations, initiated in these areas in fiscal year 1946, need to be expanded. New areas are being opened in the Columbia Basin project and crop production investigations should be initiated to determine as early as possible the proper combination of soil and crop management practices. Similarly, the complexity and seriousness of the crop production problems on the light sandy soils in the Lower Colorado River Basin require that the investigations be intensified in that area, and that they be expanded to include the Coachella Valley in California. Operating expenses have increased considerably since the original appropriation of $133,660 was granted for fiscal year 1946. Present funds, therefore, are inadequate to carry on the expanded program which is needed.

Plan of Work: The increase will be divided equally between the Lower Colorado and the Columbia Basin projects. The work will be carried out in cooperation with the Bureau of Reclamation, which is providing land, considerable equipment, and labor, the Soil Conservation Service, and the state agricultural experiment stations of Arizona, California, and Washington. In the Lower Colorado River Basin, investigations will be expanded to include the Coachella Valley. In the Columbia Basin project, crop production investigations will be expanded to include two additional "predevelopment farm units" being established by the Bureau of Reclamation and located from 50 to 150 miles from the present headquarters at Prosser, Washington. It is expected that water will be available for these units in 1948. Soil management, irrigation, and production practices with various crops will be studied in the different areas. For example, in the Lower Colorado River Basin, investigations will be expanded to more adequately cover a great diversity of crops which may be successfully grown in the area for the winter market such as potatoes, sweet corn, asparagus, sugar beets, melons, cantaloupes, and tomatoes.

(2) An increase of $45,000 under Project 2 to develop and evaluate slow acting, high analysis, synthetic nitrogen fertilizers.

Objective: To devise methods of preparing slow acting, high analysis, synthetic nitrogen fertilizers of controlled solubility and rate of availability, and to determine their properties and adaptability and effectiveness under diverse crop, soil, and climatic conditions.

Problem and Its Significance: Farmers of the United States in 1947 lost approximately $40,000,000 because nitrogen from commercial fertilizers is leached from the soil. It is estimated that farmers used around 750,000 tons of chemical nitrogen costing approximately $175,000,000 and it is estimated that approximately 25% of this nitrogen was lost by leaching.

At present all chemical nitrogen fertilizers are easily soluble in water. Their nitrogen content is immediately available to plants and is readily leached from soils or is quickly converted to a form that is readily leached. As a result, nitrogen frequently is not supplied to crops in accordance with their growth requirements, and may cause too rapid early growth or may be lost by leaching so that unless additional fertilizer is applied there may be a deficiency of nitrogen later in the season. There has been a long recognized need for synthetic nitrogen fertilizers that will resist leaching and will supply available nitrogen at rates comparable to crop requirements.

A new class of nitrogen compounds recently synthesized in the Bureau offers much promise for the solution of problems of leaching and rate of nitrogen availability. The new compounds, called Urea-form, are prepared by the reaction of urea with formaldehyde. The products obtained vary from readily soluble to practically insoluble compounds, depending upon the selected ratio between the two constituent materials. Two hundred pounds of the products obtained are the equivalent of 300 pounds of ammonium sulphate and 200 pounds of coconut meal. In addition they have a much better physical condition which meets farmer demand for improved physical properties of complete fertilizers. Physical condition is one of the major problems in the manufacture of high analysis fertilizers.

Prompt expansion of investigations to improve and test urea-form and develop manufacturing processes will save farmers money. The cost of the necessary research investigations is small in comparison with the millions of dollars annually which farmers may save if they can use products such as urea-form instead of synthetic nitrogen fertilizers which leach readily from the soil. Their improved physical condition will greatly facilitate their use in mechanized farming equipment.

Plan of Work: Investigations at Beltsville, Maryland, will be intensified on the development of improved slow acting, high analysis synthetic nitrogen fertilizers and testing their solubilities, rates of availability to plants, and other properties.

Major attention will be given to studies on alternate processes for

producing these materials. This will include the design, installation and operation of semi-works equipment for continuous production on a scale sufficient to permit reasonably accurate cost estimates. The semi-works operation will also provide adequate quantities for both greenhouse and field experiments, and for thorough evaluation of the use of urea-form in mixed fertilizers. Quantities of the most promising ratios of the product developed will be supplied to state, federal, and private cooperators for field trials with various crops. Likewise the material will be supplied to fertilizer manufacturers for cooperative large scale experiments on its use in mixed fertilizers.

(3) A non-recurring net increase of $13,000 under Project 4 for replacement of worn-out farm and other equipment.

Note: An overall statement in justification of the increases for equipment replacement is included in the explanatory notes for the "Field Crops" appropriation. Thus the notes are limited here to details applicable to this appropriation.

This increase is the net difference between the following two non-recurring items, both relating to the replacement of worn-out farm and other equipment:

Increase requested for 1949	+$36,500
Elimination of 1948 increase	-23,500
Net increase	+13,000

Equipment replacements in 1949 of $36,500 would represent about 12.5% of the total cost of equipment inventory under this subappropriation item, exclusive of laboratory equipment, and office machines, furniture, and equipment. Trucks and farm machinery are necessary to the efficient operation of the dry land and irrigation stations. The current use of badly worn equipment not only involves high repair costs, but breakdowns of equipment can seriously interfere with the farm operations and research work. At several stations, cooperating state and federal agencies are vitally affected by any failure to provide satisfactory equipment. The 15 trucks to be replaced will average approximately 14.5 years of age as of 1949 and will have been driven an estimated average of 54,000 miles (5 of the trucks are 1½ and 2 ton size). The other equipment to be replaced will average approximately 20 years of age and is in poor condition. The replacements in 1949 would be distributed approximately as follows:

(a) By items of equipment.

Description	Quantity	Cost
Trucks (Pick-up)	10	$10,000
Trucks (1½ and 2 ton)	5	8,500
Tractors (light)	2	1,950
Tractors (heavy)	3	6,100
Plows, discs and harrows	11	2,640
Mowers (hay, lawn, and ditch)	10	1,840
Planters and dusters	4	950
Grain drills	4	680
Hay rakes	6	600
Ensilage cutters	2	660
Cultivators (2), binders (2), manure spreader, spraver, seed thresher, potato digger, and other miscellaneous farm equipment		2,580
		36,500

(b) By projects.

Soil improvement, management, and irrigation investigations	$34,200
Soil classification for crop production	2,300
	36,500

(c) By states.

Alabama	$1,000
California	4,010
Colorado	1,500
Kansas	2,000
Montana	180
Nebraska	3,960
Nevada	2,950
New Mexico	1,590
North Carolina	1,000
North Dakota	1,900
Oklahoma	7,430
Oregon	360
South Dakota	3,320
Texas	3,700
Wyoming	1,600
	36,500

ITEMIZATION OF ESTIMATES

Appropriation: Soils, Fertilizers, and Irrigation

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$1,466,000	$1,604,000	+$138,000
Reimbursements for services performed	48,300	40,400	-7,900
Total obligations (inclusive of reimbursements)	1,514,300	1,644,400	+130,100
Obligations by Objects			
Standard Classification			
01 Personal services	$1,202,600	$1,299,600	$97,000
02 Travel	30,000	34,500	+4,500
03 Transportation of things	8,500	9,900	+1,400
04 Communication services	3,000	3,600	+600
05 Rents and utility services	9,000	9,000	- -
07 Other contractual services	128,200	126,600	-1,600
08 Supplies and materials	63,600	70,100	+6,500
09 Equipment	69,400	91,100	+21,700
Grand total obligations	1,514,300	1,644,400	+130,100
Reimbursements for services performed	-48,300	-40,400	+7,900
Total available (exclusive of reimbursements)	1,466,000	1,604,000	+138,000

STATUS OF PROGRAM

Current Activities: This appropriation is concerned with research on soil management methods and with soil classification in order to improve and maintain productivity of the soils of the United States. The work is conducted in three related fields, namely:

1. Soil management and irrigation research including field experiments in 23 States and supporting basic research.

2. The improvement of fertilizers and liming materials that are of increasing importance in modern soil management. Farmers now use annually approximately 45,000,000 tons of these materials at a retail cost of around $700,000,000.

3. Soil classification, including the grouping of soils of similar properties for recommending and applying management practices on individual farms. Classification of soils greatly reduces the amount of experimentation required.

More specific objectives of the current program are:

1. Increased feed crop production in the South, especially of alfalfa and corn, through better fertilizer practices and cropping systems.

2. To improve the production of sugar beets under irrigation by fertilization, moisture control, and closer spacing.

3. The development of soil management practices for Bureau of Reclamation Projects in the Columbia and Lower Colorado River Basins in advance of settlement.

4. The determination of the effect of 30-40 years cropping under different rotations at field stations on the fertility of soils in the Great Plains and other dry-land areas.

5. The determination of the phosphorus fertility status of soils and more efficient methods of phosphate fertilization through the use of radioactive isotopes of phosphorus.

6. The development of a new class of nitrogen fertilizers with controlled rate of availability.

7. The determination of the rate at which potash in different soils becomes available to crops.

8. The selection of more efficient strains of legume bacteria for use in inoculating important hay and green manuring crops.

9. Completion of field work in soil classification at a rate of approximately 15 counties a year and of map publication at 18 counties per year.

10. The development of better methods for interpreting soil maps and reports in terms of productivity and management practices to promote more efficient crop production on a sustained basis.

The research program is closely integrated with those of State Agricultural Experiment Stations. This is accomplished through (1) four Regional Soil Research Committees, (2) collaborators from the four Land Grant College Regions with the Bureau Soil and Fertilizer Laboratory, and (3) a National Soils and Fertilizer Research Committee. The arrangements involve cooperation with other Federal agencies including the Bureau of Reclamation and Tennessee Valley Authority. Through these means, combined efforts of cooperators can be focused on the most urgent problems. The work consists largely of field experiments and field mapping, laboratory and greenhouse investigations and drafting of soil maps and reports. To provide information under a wide range of climatic and soil conditions, the work is conducted cooperatively at 82 locations in 36 States. Approximately 164 professional employees, together with cooperating agents, subprofessional and clerical personnel are engaged in the program. Results of the work are made available to farmers, scientific workers, and others through the Federal-State extension services, scientific publications, soil survey reports, agricultural press, and correspondence in reply to direct inquiries.

Examples of recent progress:

1. Radioactive phosphorus has been successfully and extensively used in greenhouse and field experiments since it became available from Oak Ridge in October 1946. The first year's results showed its remarkable usefulness in research on fertilizer utilization by plants and the availability of soil phosphorus.

2. Work on urea-form, a new synthetic nitrogen fertilizer, has given important information on method of manufacture of a nitrogen fertilizer with controlled rate of availability to crops. Material of good quality has been produced in 100 pound batches. The initial results of greenhouse and field experiments are promising.

3. Investigations of the fertility of soils and related fertilizer experiments have resulted in a revision of fertilizer recommendations for potatoes in Aroostook County, Maine, a major producing area. The new recommendations provide for a moderate reduction in the use of phosphates and potash with consequent saving to growers and releasing fertilizer to other regions.

4. Studies on some 200 samples of tobacco fertilizers indicate their content of "insoluble nitrogen" is of low availability. It seems probable that costs of tobacco fertilization can be reduced 15 to 20 percent by these and related studies.

5. Heavy phosphate fertilization was shown to be essential for alfalfa production on mesa soil of the Lower Colorado region. When adequately fertilized at planting there was no response to additional fertilizer the second year.

6. More than 125 bushels of corn per acre have been produced in successive years in the Columbia River Basin by the proper combination of (1) hybrid varieties adapted to the region, (2) close spacing, (3) heavy nitrogen fertilization, (4) ample irrigation (5 feet of water), and (5) light cultivation. The nitrogen can be supplied from commercial fertilizer, but preferably by a good green manure crop and fertilizer or manure.

7. Cooperative experiments at Logan, Utah, showed that with closely spaced planting, heavy application of manure and commercial fertilizers, and carefully controlled irrigation schedules, sugar beet yields can be increased to 26 tons per acre, or twice the current 13-ton district average.

8. Wheat under dry-land conditions at Pendleton, Oregon, showed a strong response to nitrogen fertilizers, particularly on continuously cropped plots. In 1946, when May rainfall was high, yields with no nitrogen were 13.5 bushels, but with 90 pounds of nitrogen, the yields were 50 bushels per acre. On fallowed lands the corresponding increase was from 37 to 60 bushels.

9. Cooperative soil surveys were resumed in 1947 in areas where the work was suspended during the war years and surveys were initiated in other areas. In all, surveys were conducted in 27 states. In several other states surveys were being carried on by state Soil Scientists with Federal participation limited to inspection and correlation services. Altogether detailed surveys of about 2,410,000 acres and reconnaissance surveys of 270,000 acres were completed during the year. Ten reports were published during 1947 bringing the total issued to 1,560. In addition, 37 reports and maps were in the Government Printing Office as of June 30, 1947.

(e) Agricultural Engineering

Appropriation Act, 1948	$637,000
Budget estimate, 1949	654,000
Increase, 1949 (For replacement of worn-out farm and other equipment (non-recurring))	+17,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Farm power and machinery	$222,060	$235,080	$235,080	- -
2. Farm structures and related investigations	159,210	164,820	164,820	- -
3. Mechanical processing of farm products	150,334	168,790	168,790	- -
4. Farm electrification investigations	65,380	68,310	68,310	- -
5. Replacement of worn-out equipment	- -	- -	17,000	+17,000(1)
6. Repair and reconditioning of physical facilities at field stations and laboratories	36,670	- -	- -	- -
Unobligated balance	3,213	- -	- -	- -
Total available	636,867	637,000	654,000	+17,000
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+133	- -	- -	
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act costs)	-53,000	- -	- -	
Total appropriation or estimate	584,000	637,000	654,000	

INCREASE

(1) A non-recurring increase of $17,000 under Project 5 for replacement of worn-out farm and other equipment.

Note: An overall statement in justification of the increases for equipment replacement is included in the explanatory notes for the "Field Crops" appropriation. Thus the notes are limited here to details applicable to this appropriation.

Equipment replacements in 1949 of $17,000 would represent about 6.2% of the total cost of the equipment inventory under this subappropriation, exclusive of laboratory and office equipment and office machines and furniture. The conduct of farm machinery and mechanical processing investigations necessarily requires a considerable amount of equipment, such as is found in machine shops, for constructing and altering the experimental equipment. Effective conduct of the investigations, many of which are cooperative with other government agencies, requires that this equipment be in efficient operating condition. The items of equipment to be replaced in 1949 were for the most part acquired from War Department surplus over 20 years ago and are no longer fit for the precision work which is required. Their prompt replacement is needed. The proposed replacements would be distributed approximately as follows:

(a) By items of equipment.

Description	Quantity	Cost
Lathes	2	$7,500
Shaper	1	4,000
Drill presses	2	3,000
Fiber flax scutching machinery		2,500
		17,000

(b) By projects.

Farm power and machinery	$14,500
Mechanical processing of farm products	2,500
	$17,000

(c) By states.

Ohio	$13,000
Oregon	2,500
South Carolina	1,500
	$17,000

ITEMIZATION OF ESTIMATES

Appropriation: Agricultural Engineering

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase(+) or Decrease(-)
Appropriation or estimate	$637,000	$654,000	+$17,000
Reimbursements for services performed	28,500	29,500	+ 1,000
Total obligations (inclusive of reimbursements)	665,500	683,500	+ 18,000

Obligations by Objects

Standard Classification

01	Personal services	$539,100	$540,000	+$900
02	Travel	16,100	16,100	- -
03	Transportation of things	2,100	2,100	- -
04	Communication services	3,200	3,200	- -
05	Rents and utility services	12,000	12,000	- -
07	Other contractual services	30,100	30,000	- 100
08	Supplies and materials	30,800	31,000	+ 200
09	Equipment	32,100	49,100	+17,000
	Total obligations	665,500	683,500	+18,000
	Reimbursements for services performed	-28,500	- 29,500	- -
	Total available(exclusive of reimbursements)	637,000	654,000	

STATUS OF PROGRAM

Objectives and current activities: Agricultural engineering deals with machines, materials, methods, structures, power and labor in farming and related activities. The broad objectives of the research program are to develop more efficient farming operations, reduce farm labor requirements, improve the condition and quality of farm products, and promote better farm living and working conditions. Attainment of these objectives is sought through research on (1) the improvement of farm machinery, equipment, and mechanical methods for planting, cultivating, fertilizing, and harvesting farm crops and for combating their insect pests and diseases, (2) the improvement of equipment and methods for the handling and processing of products on the farm or by local cooperative enterprises, (3) the development of more effective animal shelters, better farm storage structures, and improved design of farm houses, and (4) the development and adaptation of electrical equipment for farm use.

The agricultural engineering investigations are conducted in laboratories and in the field at locations convenient to the particular problems under investigation. The work is cooperative wherever possible with other agencies of the Department, the State agricultural experiment stations, and others. The research investigations cover a broad field, since they are concerned with the many crops and commodities produced in the United States, and the many varying factors such as size of farm, amount of rainfall, climate, type of soil, and marketing conditions.

Important Problems Receiving Emphasis at Present Include:

1. Improvements in design of farm buildings, simplifying construction, and lowering costs.
2. Determination of optimum temperature, relative humidity, air movement, light, and space allowances in livestock and poultry shelters.
3. Developing designs for storage buildings for corn and other grains and improving methods of drying for storage.
4. Saving time and effort in performing chores through improved lay-out of the farmstead and interior arrangement and equipment of the individual buildings.
5. Methods of handling, drying, and storage of cotton seed.
6. Ginning of mechanically harvested cottons.
7. Development of field decorticating machinery for ramie and other fibers.
8. Testing of a new type of turbine scutcher in a commercial flax plant.
9. Surveys in cooperation with the Farm Credit Administration of engineering equipment now in use at cooperative feed-mixing plants.
10. Improvement in harvesting sugarcane as well as trash removal, and development of new procedures and equipment for mechanical planting of sugarcane and sugar beets.

(Continued on next page)

11. Increasing uniformity of distribution and adhesion of dusts and sprays through use of greater air volume or improvement in the feeding mechanism.
12. Development of improved airplane dust and liquid spray applicators for more uniform distribution.
13. Studies of cotton production equipment and methods for application of liquid fertilizers, planting, weed control, and harvesting including preharvest defoliation by mechanical means.
14. Development of new equipment and procedures for planting and harvesting sweet potatoes, harvesting and curing peanuts, and gathering, hulling, and curing tung nuts.
15. Determination of the optium temperature of air used for mow-drying hay both from the standpoint of cost and quality of the dried forage.
16. Improving tobacco curing barns, heating equipment, and operating methods to reduce fuel consumption in curing bright-leaf tobacco and to obtain more uniform quality in the cured tobacco.
17. Development of electrically heated milk pasteurizers for individual farm use that will provide complete pasteurization through uniform heat distribution.

Selected Examples of Recent Progress:

Farmhouse Plans and Bulletins: Six new farmhouse plans designed for modern rural living were developed in cooperation with State Agriculture Experiment Stations and made available to farmers. Requests to the 30 States handling the plans have run into the thousands. "How to Remodel" and "Cut-Outs for Use in Planning", two bulletins in the "Your Farmhouse" series, were published during the year and have been in big demand; sales (at 25 cents each) totaling 27,447 on the remodeling bulletin and 24,364 on the cut-out bulletin.

Research on the Drying of Corn: Laboratory investigations on various fundamental factors and constants involved in drying corn were advanced to a point where they provided the basis for engineering design of equipment and structures for drying.

Pneumatic Cotton Handling System: At the Stoneville, Miss., Cotton Ginning Laboratory, a unit pneumatic system was built. One fan furnishes all the compressed air required for the entire gin plant and saves about $750 in original cost and about 5 horsepower in operation.

Machine Combing of Flax: Engineers on the flax processing project installed combs on the scutching machine and thereby mechanized the combing or "hackling" of the flax fiber. Tests showed that with the combs, the scutched flax ran 96.3% Grade A, and 3.7% Grade B; while without the combs there was 83.9% Grade A, and 16.1% Grade B. The difference in price between the two grades is now 9 cents a pound.

Mechanical Processing of Sansevieria: Bureau engineers demonstrated the feasibility of mechanical processing of sansevieria fiber. A recent official report on a test of ropes made of this fiber states that it is the best substitute for Manila hemp, that it is much superior to sisal and henequin for marine cordage, and that for small lines it is superior to Manila because of its greater softness. Work is being continued on harvesting and processing machines required for complete mechanization.

Improvements in Crop Dusting: A precision dust feed mechanism for insect pest and plant disease control devised by USDA engineers insures high uniformity in dust delivery. In tests the last two years variation in dust at a given feed rate has been held to 3 percent or less regardless of amount in the hopper.

Sweetpotato Planter and Digger: Field tests of the USDA disk-type transplanter have given more satisfactory performance than any commercial transplanter yet tested, with savings of about 60 percent of the labor. A new mechanism for separating sweetpotatoes from the soil during harvesting also is showing considerable promise.

High Speed Cultivation of Cotton: Studies in cooperation with the Mississippi Agricultural Experiment Station have shown that by altering cultivation equipment it is possible to cultivate cotton effectively at speeds up to 6 miles an hour. Accurate setting of shovels and shallow flat cultivation are two of the important essentials.

Improvements in Tobacco Curing Barns: The second year's studies of equipment for curing bright-leaf tobacco resulted in further improvements in design of curing barns, heat distribution, and electric controls. Fuel consumption, as determined in the first year's work, was lowered to one-third that in the standard North Carolina tobacco curing barn.

Results of Forage Harvesting Tests: Under favorable weather conditions dry matter harvesting losses in mow-finished hay have averaged about 10 percent less than with field-cured hay. Under adverse weather conditions in 1947, field-cured hay was a complete loss, but mow-finished hay was dried successfully. Artificial heat added in mow-curing lowered the drying time by 50 percent, the electric power requirements by at least 60 percent, and the quality of forage was higher without material increase in operating cost.

Use of Electricity in Corn Borer Control: Field tests to determine the relative attractiveness of blue, green, white, and ultra-violet lamps to corn borer moths indicate that electric lamps and traps may become a new method for controlling several insects. While the results in 1947 were limited because of low borer population, the moths indicated a decided preference for the near ultra-violet (2,600-3,700A).

(f) National Arboretum

Appropriation Act, 1948	$436,900
Budget estimate, 1949	413,900
Decrease, 1949	-23,000

SUMMARY OF INCREASES AND DECREASES, 1949

For the preparation of plans and specifications and the development of physical facilities at the National Arboretum	+$327,000
Elimination of non-recurring item provided in 1948 Act for the acquisition of land to round out the natural boundaries of the Arboretum	-350,000

PROJECT STATEMENT

	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Operation and maintenance	$83,950	$86,900	$86,900	--
2. Development of physical facilities	--	--	327,000	+$327,000(1)
3. Acquisition of land	--	350,000	--	- 350,000(2)
Unobligated balance	3	--	--	--
Total available	83,953	436,900	413,900	-23,000
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act costs)	-7,953	--	--	
Total appropriation or estimate	76,000	436,900	413,900	

INCREASES OR DECREASES

The net decrease of $23,000 for 1949 consists of:

(1) An increase of $327,000 for the preparation of plans and specifications and the development of physical facilities at the National Arboretum.

Need for Increase: Facilities should be provided which will permit the National Arboretum to be opened to visiting scientists and for the education of the public. At the present time because of the lack of adequate roads, rest rooms, electric and water utilities which are necessary for the care of the public, the Arboretum is now opened to visitors only by special appointment. There are no buildings with herbarium, library, laboratory and other facilities necessary for the scientific research and education that represent the primary objectives of the Arboretum.

The Government has accumulated a considerable investment in the Arboretum since it was established by Act of Congress in 1927. Including appropriations for fiscal year 1948, approximately $1,041,000 has been invested for the acquisition of land and $664,000 for its development, operation, and maintenance.

There is a growing demand for admission to the Arboretum. The initial stages of the developmental program have now been completed. These consisted mainly of the work of woodland clearance, land improvement, construction of fences, installation of temporary service roads, establishment of nurseries, and the growing of stocks of woody plants for transplanting to permanent locations in the Arboretum.

During the past 5 years, permanent phases of the development program have been under way. Plantings of azalea, magnolia, holly, conifers, maples, legumes, and others have been made in final locations. Some of these plantings are of a rather spectacular nature, as for example the azaleas which cover an 8-acre slope and bloom over a 4-week period. As a result, there is a growing demand from the general public for admission to the Arboretum, and from scientists for facilities to study at the Arboretum.

Five Year Plan: During 1946 a 5-year plan for the development of the National Arboretum was formulated in collaboration with the National Arboretum Advisory Council. The plan, with tentative revisions to reflect changes in connection with the 1948 appropriation, and work proposed in the 1949 estimates, is shown in Exhibit I.

Proposed Development in 1949: The proposals for the development of the National Arboretum in 1949 take into consideration (a) the urgent need for providing facilities which will permit the Arboretum to be opened as soon as possible to visiting scientists and for the education of the public, and (b) the need for economy in government expenditures and allowing only for a conservative rate of progress for construction and improvement projects already under way. The estimates provide for the preparation of plans and specifications for the building and improvements which are a primary requisite to the proper execution of the development program. They also provide for the construction of a portion of the primary roads for the central portion of the Arboretum (which does not involve the utilization of scarce building materials), the installation of such utilities as should be made at the time the roads are constructed, the construction of a guard-house and rest room facilities, and the purchase of heavy equipment needed for the development and maintenance of the grounds. This construction will permit the Arboretum to be opened to the public. Construction of the main building, greenhouses, residences, service buildings, and remaining roads and trails is being deferred until later years. The total cost of the 1949 development program is estimated at $327,000, distributed as follows:

	Proposed Development in 1949
Preparation of plans and specifications	$150,000
Buildings	
Entrance facilities (guardhouse, rest rooms, gates, etc.)	20,000
Administrative building, greenhouses, service buildings, and residences	--
Roads	
Primary roads	83,500 (1.6 miles)
Secondary roads and trails	--
Utilities	48,500 a/
Equipment to facilitate maintenance, grading, and transplanting operations	25,000
	$327,000

a/ Includes that portion of the water, drainage, sewage, and electric power facilities which should be installed at the time the roads are constructed.

(2) A decrease of $350,000 due to the elimination of the non-recurring item included in the 1948 appropriation for the acquisition of additional land.

CHANGES IN LANGUAGE

The estimates propose the following changes in the language of this item (new language underscored, deleted matter enclosed with brackets):

Change No.

1 For the maintenance and development of the National Arboretum ****and the purchase of one passenger motor vehicle in the District of Columbia, [$436,900] $413,900, of which not to exceed [$350,000] $20,000 shall be available for the [acquisition of adjoining land] construction of entrance facilities, including a guardhouse and rest rooms, and not to exceed [$2,500] $10,000 may be expended for employment pursuant to the second sentence of section 706(a) of the Organic Act of 1944 (5 U.S.C. 574) as amended by section 15 of the Act of August 2, 1946 ****

The first change above proposes that the language submitted in the Budget be amended to provide authority for the acquisition in 1949 of a passenger motor vehicle (station wagon) for use at the National Arboretum. This change in language was inadvertently omitted from the appropriation language in the printed Budget, and therefore does not appear in the Committee Print. The inclusion of this language is recommended after informal clearance with the Budget Bureau. The station wagon is required for transportation of personnel and official visitors within the Arboretum and to and from Beltsville headquarters of the Bureau. There is no passenger motor vehicle now operated by the Arboretum.

The second change deletes language inserted in the 1948 Agricultural Appropriation Act relating to a non-recurring provision for the acquisition of land to round out the natural boundaries of the National Arboretum.

The third change inserts language authorizing the use of not to exceed $20,000 for the construction of entrance facilities, including a guardhouse and rest rooms. Such facilities are needed in order to open the Arboretum to the public.

The fourth change raises from $2,500 to $10,000 the limitation on expenditures for the employment of persons or organizations, on a temporary basis without regard to the Classification Act as amended, authorized by the second sentence of section 706(a) of the Organic Act of 1944 (5 U.S.C. 574) as amended by section 15 of the Act of August 2, 1946 (5 U.S.C. 55a). This revision of the limitation is needed to provide for possible increased employment of outside consultants for review of building plans and specifications, location of roads and utilities, and other matters which may arise particularly during the period when the physical facilities are being developed.

ITEMIZATION OF ESTIMATES

Appropriation: National Arboretum

Funds available for obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase(+) or decrease(-)
Appropriation or estimate	$ 436,900	$ 413,900	-$23,000
Total obligations	436,900	413,900	-23,000
Obligations by Objects:			
Standard Classification			
01 Personal services	$ 59,500	$ 69,300	+$9,800
02 Travel	800	800	--
03 Transportation of things	200	300	+100
04 Communication services	100	100	--
05 Rents and utility services ..	100	100	--
07 Other contractual services ..	7,200	157,200	+150,000
08 Supplies and materials	4,000	6,100	+2,100
09 Equipment	100	28,000	+27,900
10 Lands and structures	364,900	152,000	-212,900
Grand total obligations	436,900	413,900	-23,000

EXHIBIT I

REVISED PLAN (TENTATIVE) FOR DEVELOPMENT OF NATIONAL ARBORETUM

The plan for the development of the National Arboretum as originally worked out in collaboration with the National Arboretum Advisory Council and with tentative revisions to reflect the 1948 appropriation and 1949 Budget Estimates, is as follows:

	1948	1949 Budget Estimates	Future Years	Total
Acquisition of additional land	$350,000	--	--	$350,000
Preparation of plans and specifications	--	$150,000	--	150,000
Buildings	--	20,000	$1,411,700	1,331,700
Roads	--	83,500	260,200	343,700
Utilities	--	48,500	76,500	125,000
Equipment	--	25,000	--	25,000
	350,000	327,000	$1,648,400	$2,325,400

The detailed costs of the development program by fiscal years are as follows:

	1948	1949	1950	1951	1952	1953	Total
Development of physical facilities:							
Buildings:							
Administrative buildings of a design adapted to future extensions and providing space for an herbarium, library, study cubicles, group meetings, and exhibits, as well as for offices	--	--	$500,000	--	--	$500,000	$1,000,000
Greenhouse facilities	--	--	--	$245,000	--	--	245,000
Residences (2):							
Superintendent's residence	--	--	16,000	--	--	--	16,000
Propagator's residence	--	--	13,500	--	--	--	13,500

	1948	1949	1950	1951	1952	1953	Total
Entrance facilities (guardhouse, rest rooms, gates, etc.)	--	$20,000	--	--	--	--	20,000
Service buildings:							
Motor vehicle building	--	--	24,300	--	--	--	24,300
Farm machinery building	--	--	9,900	--	--	--	9,900
Blacksmith shop	--	--	3,000	--	--	--	3,000
Total, buildings							1,331,700
Roads:							
4.64 miles primary roads	--	83,500	153,100	--	--	--	236,600
2.5 miles of secondary roads	--	--	39,600	--	--	--	39,600
9 miles footpaths and trails	--	--	30,000	37,500	--	--	567,500
Total, roads							343,700
Utilities:							
Water supply, drainage, and sewage	--	45,000	30,000	--	--	--	75,000
Electric power lines	--	3,500	46,500	--	--	--	50,000
Total, utilities							125,000
Preparation of plans and specifications	--	150,000	--	--	--	--	150,000
Total, development of physical facilities							1,950,400
Acquisition of land needed to round-out boundaries of the Arboretum (small tracts adjoining the M Street entrance and others held by the District of Columbia)	$350,000	--	--	--	--	--	350,000
Equipment	--	25,000	--	--	--	--	25,000
Total, physical facilities and land	350,000	327,000	865,900	282,500	---	500,000	2,325,400

STATUS OF PROGRAM

Authorization: The National Arboretum was established pursuant to the authorization contained in the Act of March 4, 1927 (20 U. S. C. 191-194). It is located in the District of Columbia and bounded approximately by M and R Streets, N. E., Bladensburg Road, and the Anacostia River. An advisory council, appointed by the Secretary of Agriculture assists in planning the development of the Arboretum.

Purpose: The essential purpose of the Arboretum is the development of a living collection of all woody plants that can be grown in this area to serve as a source of plant materials and educational information concerning plant life not only for students and scientists throughout this country but also for visiting scientists from all over the world. Such a collection of plant materials gathered from all corners of the world would provide opportunity to breeders of trees, shrubs, and flowers to cross native species with those from foreign lands for the development of improved strains adapted for special purposes such as for city parks, forests, boulevards, and streets.

Development Plans: The Arboretum now consists of approximately 400 acres. Present improvements consist of several temporary wooden buildings for housing equipment, four small temporary propagation greenhouses, a skeleton road system, and a partially developed drainage system. Some basic developmental work has been done, including the clearing of land, making of soil surveys, and the collection of information on species of trees and shrubs adapted to the climate of the area. A large amount of plant material is being maintained in nurseries awaiting transplanting and transfers have been made during the past few years to permanent planting sites.

A program for the long-term development of the physical facilities at the National Arboretum has been developed in cooperation with the National Arboretum Advisory Council. It includes (a) the acquisition, from funds appropriated for 1948, of six small tracts of land needed to round out the boundaries of the Arboretum, (b) the erection of an administration building which will provide adequate facilities for an herbarium collection, library, study cubicles, group meetings, as well as offices, (c) the erection of greenhouse facilities for growing collections of plants not hardy enough to be grown out-of-doors in this climate and for propagating plant materials for use in the Arboretum, also service buildings and residences for the superintendent and propagator, and (d) the installation of roads and utilities adequate for great numbers of anticipated visitors of the Arboretum.

Current Activities: During fiscal year 1947, in addition to necessary maintenance of roads, drains, fences, grass areas, etc., the major attention was devoted to the care of plants in the nurseries and to the removal of as much material as possible to permanent locations. A huge azalea collection was planted on the southern slope of Mt. Hamilton. The transfer involved the complete preparation of about

8½ acres of land, including the removal of trees and bushes, building about 1½ miles of work road, soil preparation on contours with the incorporation of necessary fertilizers and peat moss, transfer of approximately 30,000 plants from the nursery to their permanent location, the establishment of temporary water connections for irrigation, and months of care of the transplanted stock. A considerable number of conifers were also transplanted, both to the collection area and to other areas for landscape effect.

In the Herbarium, 6,980 items were acquired during 1947; the exchanges totaled 2,692 outgoing and 453 incoming items. The total named plant collection now aggregates 300,800 items of which 190,519 have been mounted and filed for reference by scientists, students and others.

During fiscal year 1948, areas are being prepared to receive the Netherlands Government gift of a large display collection of azalea types not represented in the Arboretum. Likewise land is being prepared for rhododendrons, crabapple and miscellaneous shrubs which will be transplanted from the nurseries into permanent collections.

To eliminate flood damage and stream erosion caused by Hickey Creek, reinforced retaining walls and supporting bottom buttresses were installed along the stream's channel during the calendar year 1947.

Preliminary architectural plans have been prepared for the buildings contemplated under the long-term development program. Certain modifications in landscape plans were made as the result of changes in the proposed primary roads to allow for better future traffic flow of the visiting public.

Acquisition of the parcels of land adjoining the Arboretum for which funds were provided in 1948 Agricultural Appropriation Act is in progress.

(g) Southern Great Plains Field Station

Appropriation Act, 1948	$45,600
Budget estimate, 1949	- -
Decrease, 1949 (elimination of non-recurring item provided in the 1948 Act for repairing tornado damage at Woodward, Oklahoma)	45,600

CHANGE IN LANGUAGE

The estimates propose deletion of the following language of this item (deleted matter enclosed in brackets):

> /Southern Great Plains Field Station: For replacement and repair of buildings, equipment and supplies, utilities, fences and other general repairs and clean up operations from damages due to the recent tornado at Woodward, Oklahoma, $45,600./

Work authorized by the above language will be accomplished during the fiscal year 1948.

ITEMIZATION OF ESTIMATES

Appropriation: Southern Great Plains Field Stations

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase(+) or Decrease(-)
Appropriation or estimate	$ 45,600	- -	-$ 45,600
Total obligations	45,600	- -	-45,600
Obligations by Objects:			
Standard Classification			
01 Personal services	10,300	- -	-10,300
02 Travel	300	- -	-300
03 Transportation of things	500	- -	-500
05 Rents and utility services ..	500	- -	-500
07 Other contractual services ..	5,200	- -	-5,200
08 Supplies and materials	5,700	- -	-5,700
09 Equipment	4,100	- -	-4,100
10 Lands and structures	19,000	- -	-19,000
Grand total obligations ...	45,600	- -	-45,600

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

Item	Obligations 1947	Estimated obligations 1948	Estimated obligations 1949
Research and Marketing Act of 1946, Department of Agriculture (Bureau of Plant Industry, Soils, and Agricultural Engineering):			
(Title I, Sec. 10(a)) Utilization research	- -	$347,500	- -
(Title I, Sec. 10(b)) Research other than utilization	- -	601,000	- -
(Title II) Marketing research and service	- -	15,000	- -
Total, Research and Marketing Act	- -	963,500	a/ - -
Special Research Fund, Department of Agriculture (Bureau of Plant Industry, Soils, and Agricultural Engineering):			
Special research laboratories in major agricultural regions	343,270	345,700	367,700
Special research projects	136,290	109,500	107,500
Total, Special Research Fund	479,560	455,200	475,200
Research on Strategic and Critical Agricultural Materials (Bureau of Plant Industry, Soils, and Agricultural Engineering): For research on domestic rubber crop production from guayule and other rubber plants to carry out the Department's responsibility under section 7(b) of the "Strategic and Critical Materials Stock Piling Act of July 23, 1946"	- -	170,000	170,000
Salaries and Expenses, Soil Conservation Service (Bureau of Plant Industry, Soils, and Agricultural Engineering): Correlation of soil types and inspection of soil surveys made by Soil Conservation Service	213,299	188,500	188,500

a/ Allotments under this appropriation for the fiscal year 1949 have not been determined.

Item	Obligations 1947	Estimated obligations 1948	Estimated obligations 1949
Emergency Rubber Project, Department of Agriculture (Bureau of Plant Industry, Soils, and Agricultural Engineering): Investigations directed toward the production of rubber from guayule	8,800	--	--
Working Fund, Agriculture, Bureau of Plant Industry, Soils, and Agricultural Engineering (Advance from Commodity Credit Corporation, Capital Fund): Development of methods of properly caring for grain in storage	1,371	--	--
Miscellaneous Contributed Funds (Bureau of Plant Industry, Soils, and Agricultural Engineering): Trust funds deposited by cooperators for cooperative work, as follows:			
1. Improvement and management of turf grasses, and control of weeds by chemical treatment	4,037	3,558	3,607
2. Collection of planting material of sugarcane species and varieties for the American sugarcane areas	2,000	--	--
3. Investigations on the control of diseases of truck crops	67	--	--
4. Investigations on the production of morphine for medicinal use from the poppy plant	10	750	500
5. Collection and testing of seeds of sorgo species and varieties	2,925	75	--
6. Floricultural research on new methods of production and propagation, development of new varieties and methods of disease control	1,584	1,266	--
7. Hybrid onion research to develop improved high-yielding disease-resistant varieties	700	--	--

Item	Obligations 1947	Estimated obligations 1948	Estimated obligations 1949
Miscellaneous Contributed Funds (Bureau of Plant Industry, Soils, and Agricultural Engineering): (Cont'd.)			
8. Investigations on growing, harvesting, and testing of ramie, sansevieria, kenaf and fiber plants in Florida	1,500	- -	- -
9. Production of parent or foundation cottonseed to meet the needs of the one-variety program in California	6,468	6,545	6,493
10. Comparison of methods for accelerated tests of wood decay	1,369	3,631	- -
11. Sugar beet storage investigations	- -	2,500	- -
12. Development of cryptostegia as a source of rubber	- -	275	- -
Total, Trust Funds	20,660	18,600	10,600
Penalty Mail Costs, Department of Agriculture (Allotment to Bureau of Plant Industry, Soils, and Agricultural Engineering): For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress	5,961	8,900	9,700
Cooperation with the American Republics, (Transfer from State Department): a/			
Investigations directed toward the development of rubber production in Western Hemisphere	346,669b/	335,012	340,000
TOTAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	1,074,506	2,139,712	1,194,000

a/ Detailed schedule for this item appears in the State Department chapter of the Budget.

b/ Includes $2,249 for studies of grasses in Brazil.

PASSENGER MOTOR VEHICLES

Replacements: The 1949 estimates for the Bureau of Plant Industry, Soils, and Agricultural Engineering contemplate the replacement of 44 automobiles, which is approximately 21 percent of the number of cars owned and operated. The estimated net cost of replacement is $44,000. The cars to be replaced will average 10 years of service and will have been driven an estimated average of over 65,000 miles at the time of trade-in, so that they no longer are dependable or economical of operation. Cars are essential for use by research workers where other means of transportation are inadequate or not available. The replacements should be made as soon as possible.

Acquisitions. The 1949 estimates also provide for the purchase of 5 additional cars required to carry on the following programs of work:

	Number
Forest Diseases	
For use by forest pathologists at Portland, Oregon, to carry on disease investigations in forested areas and forest nurseries in Idaho, Washington, and Oregon, not accessible by common carrier. Insufficient equipment now reduces the work which could be performed.....	1
Agricultural Engineering	
For use at Athens, Georgia, to permit rapid travel to rural areas not served by any form of public conveyance to carry out the research program on farm buildings and rural housing. No car is now assigned to the work at this location.....	1
For use at Oxford, N. C. to permit rapid travel to rural areas of North Carolina, South Carolina, and Georgia, not served by any form of public conveyance to carry out research on electrical control of curing tobacco and to permit close contact with farmers, state cooperators and others. No car is now available at this location.....	1
For use at Storrs, Connecticut, to permit rapid transportation to rural areas not served by public conveyance to carry out research on a small farm-type pasteurizer and for consultation work and planning in rural areas. No car is now available at this location.....	1
National Arboretum	
A station wagon is required for transportation of personnel and official visitors over the several miles of road within the Arboretum and to and from Beltsville headquarters..	1
	5

If procurement of the new vehicles should prove to be impracticable, the funds estimated for this purpose would be needed for additional costs of keeping present vehicles in operation and of performing travel by other means.

Penalty Mail Estimate
Section 2, Public Law 364, 78th Congress
(Allotment to Bureau of Plant Industry,
Soils, and Agricultural Engineering)

	1947	1948	1949	Increase (+) or decrease (-) 1949 over 1948
Category 1	$1,490	$2,200	$2,400	+$200
Category 2	4,471	6,700	7,300	+600
Totals	5,961	8,900	9,700	+800 (1)

(1) The increase of $800 for 1949 consists of the following:

(a) Increase of $670 for the purpose of providing sufficient funds with which to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20.00 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

(b) Increase of $130 to cover additional mailings resulting from increases for research projects proposed in the 1949 estimates, as follows:

Fruit, vegetable, and specialty crops:
For mushroom production and disease investigations.
For breeding high quality disease-resistant varieties of hops and for developing improved disease control methods and production practices.
Soils, fertilizers, and irrigation:
For soil management investigations on newly irrigated lands in the lower Colorado river and Columbia Basin projects.
For research to develop and evaluate slow-acting, high-analysis, synthetic nitrogen fertilizers.

- - - - - - - - - - - - - - -

Category 1 consists of Farmer's Bulletins and other publications furnished in response to specific requests for information which result from research on the development of improved disease-resistant crop varieties, methods of soil management and cultural and fertilizer practices that maintain soil fertility and give maximum production on a permanent basis, control of plant diseases and weeds, agricultural engineering, etc.

Category 2 consists of administrative and operating correspondence with field personnel located throughout the United States and with the state experiment stations and other agencies cooperating with the Bureau in its research programs, and mailing of vouchers, payrolls, and other operating documents. There also is a considerable exchange of small parcels of seed, plant materials, and soil samples between cooperators and the Bureau.

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Summary of Appropriations, 1948 and Estimates, 1949

Item	Appropriations, 1948	Budget estimates, 1949	Increase (+) or decrease (-)
Salaries and expenses:			
Insect investigations	a/ $2,956,300	$3,019,800	+ $63,500
Insect and plant disease control	b/ 2,266,700	2,266,700	- -
Foreign plant quarantines	2,000,000	2,212,000	+ 212,000
Total, salaries and expenses	7,223,000	7,498,500	+ 275,500
Control of emergency outbreaks of insects and plant diseases	2,050,000	2,050,000	- -
Total, direct annual appropriation	9,273,000	9,548,500	+ 275,500

a/ Excludes $10,000 transfer in 1949 estimates to "Control of Forest Pests, Department of Agriculture," Forest Pest Control Act.

b/ Excludes transfers in 1949 estimates to "Control of Forest Pests, Department of Agriculture"

Gypsy and brown tail moths	$603,600
Dutch elm disease	101,800

Salaries and Expenses

(a) Preamble

The estimates include a proposed change in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

* * * including the operation and maintenance of airplanes and the purchase of not to exceed [seven,] five, * * *

The change in language reducing the number of airplanes to be purchased from seven to five is due to the proposed transfer of the "Gypsy and Brown-tail Moth Control" activity to the new appropriation "Control of Forest Pests."

(b) Insect Investigations

Appropriation Act, 1948	$2,966,300
Transfer in 1949 Estimates to "Control of Forest Pests" Department of Agriculture" Forest Pest Control Act	-10,000
Total available, 1948	2,956,300
Budget estimate, 1949	3,019,800
Increase, 1949	+63,500

SUMMARY OF INCREASES, 1949

For replacement of worn-out trucks (non-recurring)	+41,500
For the repair and improvement of facilities at field stations (non-recurring)	+22,000

PROJECT STATEMENT

(Note.--Amounts in parentheses opposite the alphabetically designated sub-projects represent the details of the numerically identified main projects which immediately precede.)

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Fruit insects	$504,010	$513,600	$513,600	
(a) Fruitflies which are potential pests in Continential United States	(81,291)	(82,200)	(82,200)	
(b) Deciduous fruit insects	(238,400)	(242,900)	(242,900)	
(c) Citrus and other sub-tropical fruit insects	(54,162)	(56,700)	(56,700)	
(d) Japanese beetle investigations	(130,157)	(131,800)	(131,800)	
2. Forest insects	431,139	470,800	470,800	
(a) Tree-killing bark-beetles and their control	(86,227)	(118,000)	(118,000)	
(b) Defoliating, boring, and sucking insects and their control	(51,737)	(50,900)	(50,900)	
(c) Insects affecting forest products and development of control methods	(24,900)	(23,500)	(23,500)	
(d) Insect vectors of forest tree diseases	(57,769)	(54,200)	(54,200)	
(e) Spruce budworm and its control	(210,506)	(224,200)	(224,200)	
3. Truck crop and garden insects	434,696	451,300	451,300	
(a) Tobacco insects	(61,360)	(68,400)	(68,400)	
(b) Truck crop insects	(373,336)	(382,900)	(382,900)	

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
4. Cereal and forage insects	500,338	509,300	509,300	
(a) Cereal and forage insects	(467,063)	(477,500)	(477,500)	
(b) Sugarcane insects	(33,275)	(31,800)	(31,800)	
5. Cotton insects	176,357	180,700	180,700	
(a) Boll weevil	(41,340)	(42,200)	(42,200)	
(b) Bollworm	(13,996)	(14,500)	(14,500)	
(c) Pink bollworm investigations	(46,084)	(46,800)	(46,800)	
(d) Cotton aphid	(31,441)	(32,000)	(32,000)	
(e) Cotton fleahopper and related insects	(15,870)	(16,500)	(16,500)	
(f) Plant bugs affecting irrigated cotton	(19,397)	(19,800)	(19,800)	
(g) Various cotton insects	(8,229)	(8,900)	(8,900)	
6. Bee culture	158,527	163,800	163,800	
7. Insects affecting man and animals	208,643	167,200	167,200	
(a) Insects affecting man and animals	(181,520)	(140,800)	(140,800)	
(b) Household insects	(27,123)	(26,400)	(26,400)	
8. Insect pest survey	7,647	8,800	8,800	
9. Identification and classification of insects	155,109	150,000	150,000	
10. Foreign parasites	35,542	36,500	36,500	
11. Control investigations	146,578	149,900	149,900	
12. Insecticide and fungicide investigations	152,453	154,400	154,400	
13. Replacement of automotive equipment	-	-	41,500	+ 41,500(1)
14. Repair of physical facilities	-	-	22,000	+ 22,000(2)
Unobligated balance	15,049	-	-	
Total available	2,926,088	2,956,300	3,019,800	+ 63,500
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+412	-	-	
Transferred from "Exportation and Domestic Consumption of Agricultural Commodities, Department of Agriculture" (for Pay Act costs)	-260,000	-	-	
Transfer in 1949 estimates to "Control of Forest Pests, Department of Agriculture"	+10,000	+10,000	-	
Total appropriation or estimate	2,676,500	2,966,300	3,019,800	

INCREASES

(1) A non-recurring increase of $41,500 for the replacement of trucks no longer serviceable or economical to operate. The research program of the Bureau is heavily dependent on motor transportation to move men and materials to the various field work locations situated throughout the United States. War scarcities and shortage of funds have precluded an adequate program of truck replacement in recent years. Consequently, a large portion of the Bureau's trucks can no longer be operated economically or efficiently, and by 1949 a number of them will be unuseable from the standpoint of safety. The proposed increase will provide for the replacement of 55 light trucks, 20% of the total number used on research projects. The machines to be replaced are of 1939 or earlier model, and have an average mileage in excess of 75,000 miles.

(2) A non-recurring increase of $22,000 for repair of physical facilities composed of:

(a) An increase of $6,000 to repair the tobacco insect laboratory at Oxford, North Carolina. No repairs have been made to this building, which represents an investment of $80,000, since its construction in 1939. A recent inspection indicates a need for certain repairs to the roof and to structural members, as well as interior painting throughout. This work is necessary to prevent deterioration of the property.

(b) An increase of $16,000 to replace water pipes and guttering at the main Entomology building at the Agricultural Research Center, Beltsville, Maryland. Of this amount, $15,000 is needed to replace pipes which distribute water to the various outlets in the building. These pipes are so badly corroded that the frequent leaks and breakages threaten serious damage to the whole building. The remaining $1,000 is needed to replace the system of gutters. The present ones have broken repeatedly, causing injury to walls.

CHANGE IN LANGUAGE

The estimates include a proposed deletion in the language of this item as follows (deleted matter enclosed with brackets):

[Insect investigations: For an additional amount for "Insect investigations," including the same objects specified under this head in the Department of Agriculture Appropriation Act, 1948, $5,000: Provided, That this additional amount shall be used for the maintenance and operation of a research laboratory at Quincy, Florida, for the study of insects and fungi affecting cigar-wrapper tobacco.]

This change deletes language carried in the Second Supplemental Appropriation Act, 1948, providing funds for maintenance and operation of a research laboratory at Quincy, Florida, for the study of insects and fungi affecting cigar-wrapper tobacco. This work is estimated for in the regular item "Insect investigations," for the fiscal year 1949, and the language proposed for deletion is no longer necessary.

ITEMIZATION OF ESTIMATES

Appropriation: Insect Investigations

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$2,966,300	$3,019,800	+ $53,500
Reimbursements for services performed	13,000	13,000	- -
Total available for obligation	2,979,300	3,032,800	+ 53,500
Comparative transfer to "Control of Forest Pests, Department of Agriculture"	-10,000	- -	+ 10,000
Total obligations (inclusive of reimbursements)	2,969,300	3,032,800	+ 63,500
Obligations by Objects			
Standard Classification			
01 Personal services	2,476,800	2,476,800	- -
02 Travel	123,000	123,000	- -
03 Transportation of things	25,500	25,500	- -
04 Communication services	12,500	12,500	- -
05 Rents and utility services	67,500	67,500	- -
07 Other contractual services	80,000	102,000	+ 22,000
08 Supplies and materials	110,200	110,200	- -
09 Equipment	59,000	100,500	+ 41,500
10 Lands and structures	10,000	10,000	- -
13 Refunds, awards, and indemnities	4,800	4,800	- -
Grand total obligations	2,969,300	3,032,800	+ 63,500
Reimbursement for services performed	- 13,000	- 13,000	- -
Total available (exclusive of reimbursements)	2,956,300	3,019,800	+ 63,500

STATUS OF PROGRAM

Current Activities: The work on insect investigations is carried on in practically every state, in Hawaii, Puerto Rico, Panama, Mexico, and headquarters for foreign parasite work are maintained in France. The work is conducted through field tests and laboratory experiments. Most of the activities are carried on in cooperation with state colleges, agricultural experiment stations, other agencies of the Federal government, associations, commercial growers, livestock owners and bee-keepers.

Research activities in general are for the following purposes:

(1) To develop means whereby the growers of fruits, nuts, truck and garden crops, cereal, forage and range crops, cotton, tobacco, sugar plants and other agricultural products, can control insect pests more effectively or more economically, thus increasing the net returns from their operations and insuring an ample supply of high-quality agricultural products.

(2) To devise the most effective and economical means of preventing or controlling insect damage to forest and shade trees, forest products and shrubs.

(3) To reduce losses from bee diseases, to promote better methods of apiary management for honey and wax production and for pollination, and to provide for the use of superior strains of bees.

(4) To develop control measures for those insects which transmit disease, annoy man, and attack livestock.

(5) To devise the most effective and economical means of preventing or controlling insect damage to stored agricultural products, foods and fabrics.

(6) To identify insects and allied organisms for the quarantine, control and research activities of the Bureau and for other Federal and State agencies, farmers, pest control operators, and other private individuals of the United States, as well as for foreign institutions; and to collect, maintain, and furnish information as to the presence and abundance of insect pests.

(7) To develop methods and apparatus for freeing commodities of pests under plant quarantine regulations so that they can move freely and safely in commerce; and to improve the chemical materials now employed in controlling insects, to develop new and better chemical materials, and to devise improved apparatus and methods for their application.

Among the undertakings now in process, the following are selected as typical, but by no means cover all of the activities under this sub-appropriation:

1. In order to insure increased crop production, new insecticides are being tested extensively against many kinds of insects, such as orchard mites, Japanese beetle and its grubs, budworm, grasshoppers, corn-borers, cotton leafworm, cotton aphid, insects affecting vegetables, and other crop pests to determine the most suitable formulations and schedules that may be used for their control on the various crops.

2. To increase the usefulness of DDT as an insecticide on orchard crops, methods of preventing increases in populations of mites, leafrollers, and other pests following its use are being studied and developed.

3. As a basis for development of methods of preventing or controlling the phony peach, peach mosaic, Dutch elm disease, and destructive virus diseases, studies are carried on to determine what insects transmit these diseases.

4. To determine the possible hazardous effect on man and animals of residues of DDT and other new insecticidal chemicals on food and forage crops, also to determine whether or not accumulations of these materials in soils resulting from continued application to crops may prove harmful, many tests are being conducted.

5. In order to appraise the usefulness and ascertain schedules for their use, many of the newer chemicals which show considerable promise as insecticides are being tested. These include:

   benzene hexachloride
   chlordane
   chlorinated camphene
   tetraethyl purophosphate
   piperonyl butoxide
   parathion

6. To mitigate the threat to production of citrus and other subtropical fruits in the United States, studies, in some instances in cooperation with the Mexican Government, are under way on certain tropical fruitflies.

7. Bees are being bred for honey productivity and disease resistance, utilization of insects for pollination, apiary management, and bee diseases. The following are the present objectives:

(a) To develop bees with increased resistance to American foulbrood.
(b) To develop bees with increased honey productivity.
(c) To facilitate the shipment of package bees by air.
(d) To increase insect pollination of legumes.

8. To provide and steadily improve the bases for definite and complete identification of insects, continuing research is essential. One of the projects under way is a study of Meyrick collection of microlepidoptera at British Museum, involving temporary assignment of one specialist to London.

9. Development of methods for disinfestation of plants and commodities, to permit movement under Federal and State quarantine regulations, centers mainly on the following problems:

(a) White-fringed beetle. A large variety of nursery plants are being fumigated with methyl bromide to determine those which would not be injured by the treatment which kills the white-fringed beetle. Extensive tests are being made with a mixture of methyl bromide, ethylene dichloride and carbon tetrachloride, injected into the soil, as a substitute for fumigation in nursery stock certification.

(b) Sweetpotato weevil. Studies are under way regarding the causes of injury to sweetpotatoes when fumigated with methyl bromide, to kill the weevil, and to develop methods for eliminating injury.

(c) Mediterranean fruit fly. The performance of refrigeration compartments and temperature recording equipment is being checked on all ships carrying vinifera grapes and certain deciduous fruits from South Africa. This is to insure that the fruit will be held within definite temperature limits for a fixed period to kill all fruit fly larvae that may be present.

10. Methods for elimination of insects from aircraft are being studied, and improved insecticides developed for use against agricultural pests in aircraft arriving in the United States from foreign countries.

11. In the search for new and more effective insecticides, large numbers of new chemicals, mostly synthetic organics, but some of plant origin, are being tested. A cooperative project with the Bureau of Agricultural and Industrial Chemistry deals with the testing of new nicotine compounds as insecticides.

Selected Examples of Recent Progress and Trends: Among recent accomplishments in which the Bureau has participated are the following:

1. Investigations of Fruit Insects. The investigations of fruit insects are carried on at field laboratories, mostly located in important fruit and nut producing areas, in 13 states, Hawaii, Panama, and Mexico.

a. The outstanding control of codling moth resulting from the use of DDT has permitted a shift in emphasis to the problems of orchard mites, woolly apple aphid, and red-banded leafroller, which often increase after DDT is used. Greater emphasis is also being placed on work with insects of peach, cherry, and apricot trees, and on the pear psylla in the Northwest.

b. Among the new insecticides that show promise for control of curculio in peach orchards are benzene hexachloride, chlordane, a chlorinated camphene, and parathion. The same materials (except chlordane) have also given favorable results against the pear psylla in the Northwest.

c. DDT has been found effective in controlling sucking bugs that deform peaches. Applications of this material in the form of fogs or smokes (sometimes called "aerosols") in South Carolina gave good coverage and as good results as applications with conventional equipment.

d. Two pests of nuts - the pecan weevil and the chestnut weevil - for which no insecticide had previously been found effective, have yielded readily to spraying with DDT.

e. With the virtual completion of studies of the biology of the filbert worm and the pressure on the working funds available for studies of fruit insects, the laboratory at Eugene, Oregon, has been closed. Limited work on control will be continued through cooperation with the Oregon Agricultural Experiment Station.

f. A new insecticidal combination for controlling the citrus blackfly, which is a serious threat to citrus production of the United States, especially in California and Texas, are being developed in cooperation with the Mexican Government.

2. Investigations of Forest Insects. Research on forest insects is centered at nine regional laboratories, in close cooperation with other agencies concerned with forests and forest products. Chief emphasis is placed on development and improvement of methods of protecting commercial timber. The following are typical examples of work now in progress:

a. Bark beetle losses in the western states have increased greatly during the last 3 or 4 years.

The current heavy bark beetle infestations have emphasized the need for more effective and cheaper methods of control. The Forest Service and other land-managing agencies have attempted control on several areas during the past year but present control methods are so costly and require so much labor that many important infestations are not combatted. A considerable amount of effort has been put into tests in the use of newer insecticides, such as DDT and benzene hexachloride, in the hope that they can be used to replace the older methods that require a lot of hand labor. Airplane spraying was tried on several hundred acres but preliminary results do not appear too encouraging. Where hand or power spraying equipment has been used the results have been good. Much additional work of this type is needed.

b. Progress is being made in the development of aerial spraying. The development of new types of aerial spraying equipment has resulted in improved distribution of spray but has also shown the need for much additional work on apparatus, spray mixtures, and flight procedures that will insure better coverage of treated areas and increase the percent of control obtained. Field tests were conducted in spruce budworm infested areas in New York in cooperation with the State Conservation Department, with very encouraging results. Several other tests were made with other insects such as pine sawflies and spittle bugs in the Lake States, white pine weevil in New York, pine tip moth in Nebraska, and pine bark beetle in Wyoming and South Dakota. Progress thus far indicates that in future years it may be possible to prevent or greatly reduce losses.

3. Investigations of Truck Crop and Garden Insects. Investigations on the control of insects and related pests affecting vegetables, tobacco, ornamentals, and mushrooms, are carried on at 23 field laboratories. The following undertakings are selected as typical:

a. Effective all-purpose insecticide developed for use on beans in the East containing rotenone--DDT-sulfur, controls the Mexican bean beetle, corn earworm, leafhoppers, spider mites and powdery mildew disease.

b. Onion and sugar beet seed yields increased by use of DDT to control infesting insects in the Southwest, Idaho, and California.

c. DDT widely adopted by potato and cabbage growers for the control of several species of insects with consequent increased yields of these crops.

d. Soil insecticides and soil fumigants control wireworms in California and Washington. DD mixture, ethylene dibromide, DDT, and benzene hexachloride are being used by the bean growers to control wireworms on large acreages of infested lands.

e. Aerosols prove effective in controlling many of the most destructive insects affecting vegetables and flowers in greenhouses and the pea aphid on peas in the East. Aerosols propelled by compressed gas and containing either DDT or one of the new phosphate compounds are being widely adopted by greenhouse men and used by some growers of affected crops.

f. New fumigant gives spectacular results against insects infesting stored tobacco in the South. This new fumigant (acrylonitrile) is more effective and cheaper than fumigants now in use against the cigarette beetle and tobacco moth in stored tobacco.

4. Investigations of Cereal and Forage Insects. Following promising results with several of the new insecticides in the control of insects attacking cereal and forage crops, emphasis is being placed on development of their use and of equipment for applying them. These investigations supplement studies to develop insect-resistant crop varieties and cultural control methods.

a. Plants resistant to insect attack. The dent corn inbred P8, resistant to the European corn borer, was released during the year through the Indiana State Experiment Station. A soft red winter wheat resistant to the Hessian fly, leaf rust, loose smut and mosaic, considered for early release through the Indiana Station, maintained high resistance to the fly in field trials.

b. Parasites of European corn borer and sugarcane borer. Parasites of the European corn borer originally introduced from foreign countries and collected in the United States for redistribution, were released in many infested States in 1946. An estimated saving of 1,900,000 pounds of the 1946 sugar crop resulted from reductions caused by imported parasites in populations of the sugarcane borer in Florida.

c. European corn borer and southwestern corn borer spreading and wheat stem sawfly a threat to wheat in Great Plains Area. The European corn borer and the southwestern corn borer have almost overlapped in northeastern Kansas. The European corn borer

increased in abundance in Iowa, Minnesota, and North Carolina, and caused an estimated total loss of $37,000,000 in 1946. Losses from the wheat stem sawfly in Montana and North Dakota were estimated at $15,000,000 in 1946. Control studies have been continued or initiated on all three of these pests.

d. Recommendations for use of DDT. The major limitation on the use of DDT and other new compounds on cereal and forage crops is the possible hazard to man or animals of residues remaining on treated crops. With limitations as to its use, DDT is now recommended for use against several insects attacking sweet corn, seed crops in the field and insects attacking seed stocks in storage and inhabiting walls and woodwork of grain bins, mills and warehouses. DDT was found to be compatible with all of the common fungicides except ethyl mercury phosphate, thereby permitting efficient treatment of seeds with a combined insecticidal and fungicidal dust.

e. Chlordane, chlorinated camphene and benzene hexachloride have been found promising against several insects attacking cereal and forage crops, including grasshoppers in dense succulent vegetation. Ammonium fluosilicate was a very promising substitute for sodium fluosilicate in grasshopper baits. Ground stems of Ryania speciosa was recommended to growers for control of the European corn borer.

f. Fumigants for stored grain and cereal product insects. Tests indicated that application of the entire fumigant dosage into the flour stream at the breaker rolls with the machinery running a few minutes before shut down of mill was as effective as when individual machines were treated, and the time required for the operation was reduced from several hours to a few minutes. A mixture of chloroethyl formate and carbon tetrachloride gave good results against the rice weevil and the flour beetle.

5. Investigations of Cotton Insects. During 1947 there was a notable shift in the research programs on cotton insects to benzene hexachloride, mixtures of benzene hexachloride and DDT, and chlorinated camphene. During 1947 cooperative experiments in boll weevil control were conducted with farmers in 10 states. The results of the experiments indicate that the new synthetic organic insecticides are likely to replace calcium arsenate and nicotine for boll weevil and cotton aphid control.

a. Experiments indicate that benzene hexachloride is more effective than calcium arsenate or any other material that has been used on a practical field basis for the control of the boll weevil. It appears to be more effective than nicotine or rotenone for the control of the cotton aphid, and is highly toxic to many other insects that are injurious to cotton. This material is not effective against the bollworm and the red spider mite.

b. Preliminary experiments suggest that 5 percent DDT plus 3 percent gamma benzene hexachloride will be generally useful for the control of cotton insects. This mixture is highly effective against all of the cotton pests against which it has been tested with the exception of the red spider mite.

c. Chlorinated camphene. Mixtures containing 20 percent or less of chlorinated camphene were found to be effective against the boll weevil, and many other cotton insects.

6. Investigations of Bee Culture. The work is carried on in eight states. Bees are kept in every state. The number of colonies in 1946 was 5,787,000. They produced 213,814,000 pounds of honey, valued at $52,137,000. Bees pollinate some 50 fruit, vegetable, legume seed and other crops, thus making them indispensable in the growing of many crops. Among examples of recent progress, the following are typical:

a. Resistance of experimental stock to American foulbrood has been increased to 90% to 100% by artificial insemination. With natural matings, the degree of resistance levelled off at 76 to 86 percent after eight generations.

b. Honey bees can and do trip the alfalfa blossoms and thus cause its pollination, if too many competitor plants are not present.

7. Insects Affecting Man and Animals.

a. During recent years specific methods have been developed for using DDT against the Northwest species of mosquitoes. Recent studies show that several other insecticides such as chlordane, methoxy DDT, TDE, and benzene hexachloride are also highly effective insecticides for mosquitoes and certain gnats. Better ways to use DDT and the newer insecticides for more effective control are being developed.

b. Tests during the past year show that at least four good insecticides can be used effectively for the control of horn flies. A new screwworm remedy known as E.Q. 82 was developed during recent years. DDT, chlorinated camphene and three other new chemicals were shown to provide promising treatments for fleeceworms. Current investigations include studies on horn flies, stable flies, house flies, screwworms, wool maggots, deer flies and horse flies. New chemicals and new formulations of the better chemicals are under study for all of the pests mentioned.

c. During the last fiscal year several new tick killing agents were tested extensively against the lone star tick, two new synthetics known as chlorinated camphene and benzene hexachloride being among the most promising of those tested. Current activities in research on ticks are mostly limited to three representative species--the lone star tick, Gulf Coast ear tick, and the winter tick. Incidental studies are under way also on the spinose ear tick, brown dog tick, poultry tick, cattle tick, and other important ticks attacking animals.

d. New approaches to the problem to develop a single effective treatment for the control of cattle grubs are being considered. Young larvae of cattle grubs were successfully grown in laboratory animals such as mice and rabbits when taken from cattle and transplanted in the smaller animals. This makes tests possible with many chemicals to determine their value as chemotherapeutic agents.

e. Research during the past few years has shown that DDT and benzene hexachloride are excellent louse killing agents. Recent studies suggest that chlorinated camphene is equal or superior to the two materials mentioned. Current activities include an appraisal of the relative effectiveness of about ten new insecticides against lice of all kinds of farm animals. These studies include various types of formulations and methods of application. A new and important louse of cattle known as the tail louse was found in Florida in 1945. It is now known to occur in most of the southern states.

f. Studies are now under way on the clothes moths, ants, silverfish, and cockroaches. The several new insecticides such as DDT and chlordane now available are being studied in efforts to determine their relative merits and how best to use them. Comparative tests have shown that chlordane is perhaps superior to DDT for roaches and may be effective also for ants. DDT is one of the better insecticides for imparting moth-resistant properties to clothing. It is superior to many so-called mothproofing agents used on clothing not subject to laundering or dry cleaning.

8. Insect Pest Survey. Insect pest survey accumulates data on the occurrence, distribution, abundance and host plants of insect pests. The data are summarized into statements on the more important insect conditions.

Work accomplished during the past year includes:

a. Abstracting and filing 4,000 records of domestic insects.

b. Preparation and issuance of 7 monthly and 1 annual summary of insect conditions.

c. Issuance of 8 special supplements to the Insect Pest Survey.

9. Identification and Classification of Insects. This project is basic to all other entomological activities. Selected examples of recent progress include:-

a. Identification of 50,000 to 70,000 insect samples annually for agencies and individuals requiring them.

b. Publication of 30 to 40 technical papers on insect classification annually.

c. Participation in insect surveys of Central Pacific Islands and Alaska, providing basis for pest control operations.

10. Foreign Parasites. Two Klamath weed insects imported from Australia are well established in northern California and show definite promise of being able to control this pest. Additional shipments, totalling 600,000 adults, of two species of Chrysolina, were received from Australia during 1947.

Investigations on and collection of natural enemies of insect pests in South America have been terminated and these activities resumed in Europe with headquarters in France. This permits placing emphasis on importing natural enemies of such pests as the introduced European chafer and insect enemies of Klamath weed and gorse.

11. Control Investigations.

a. The application of DDT to the soil in the nursery, in conjunction with a series of residual sprays on the foliage, is an effective substitute for methyl bromide fumigation and avoids plant injury often associated with the latter treatment for the certification of nursery stock under white-fringed beetle quarantines.

b. Improved aerosols and residual sprays have been developed to eliminate insects in aircraft from abroad and for treatment of planes within the area infested by the Japanese beetle.

c. Aerosols produced by "fog" machines were as effective as sprays in the field control of tarnished plant bug on peaches and other pests. One machine treats 10 acres per hour.

d. Twenty-one chemical compounds showed promise as insecticides, two proved to be effective synergists for pyrethrum and two for nicotine.

12. Insecticide and Fungicide Investigations.

a. The development of synthetic organic insecticides has been of major interest. Standard methods for the analysis of DDT dusts and sprays have been established. Procedures for testing DDT dusts and wettable powders have been worked out for use in purchase specifications. Different clays and other minerals were examined for possibilities as dust diluents for DDT or other insecticides. The effect of solvents used in sprays on the decomposition of DDT residues was studied.

Analyses of vegetables treated with DDT dusts or sprays showed no absorption of DDT into the edible parts of the plants. Analyses of milk, butter, fat, and meat from cattle which had received feed treated with DDT showed that the DDT was concentrated mainly in the fat of the animals and appeared in the milk, being present in the butter fat.

Benzene hexachloride is another synthetic organic insecticide which is becoming of considerable importance. It has proved difficult to find methods for analyzing insecticides and treated plant materials containing it. A cryoscopic method has been devised for the analysis of technical grade benzene hexachloride.

b. A chemical study has been made of hexaethyl tetraphosphate and related substances. This material is very effective against aphids and some other insects but is quickly decomposed in the presence of moisture to products which are not insecticidal. The rate and nature of this decomposition was studied chemically. Tetraethyl pyrophosphate proved to be even more toxic than hexaethyl tetraphosphate to insects. Several tests for these compounds have been devised and further work is in progress on ways of determining their purity in order to establish specifications for them.

c. Aerosol formulas containing hexaethyl tetraphosphate were developed which gave excellent control of aphids and mites in greenhouses. New aerosol formulas for the control of household insects have been developed which operate at a lower pressure than those now in general use and permit cheaper, light-weight containers.

d. Improvements have been made in the formulas of insecticidal aerosols for use in airplanes to destroy agricultural pests and disease-carrying insects.

e. Nine public service patents were obtained for insecticides and insect repellents.

f. Several thousand samples of insecticides, agricultural products containing insecticide residues, and related materials, were analyzed during the year to guide the entomological field testing programs of this Bureau and to determine the possibility of health hazards from residues on agricultural products treated with insecticides.

(c) Insect and Plant Disease Control

Appropriation Act, 1948	$2,972,100
Transfer in 1949 Estimates "Control of Forest Pests, Department of Agriculture"	-705,400
Total available, 1948	2,266,700
Budget estimate, 1949	2,266,700
Change, 1949	-

SUMMARY OF INCREASES AND DECREASES, 1949

It is proposed to continue in 1949 $78,500 appropriated in 1948 for replacement of worn-out trucks.

PROJECT STATEMENT

(Note.--Amounts in parentheses opposite the alphabetically designated subprojects represent the details of the numerically identified main projects which immediately precede.)

Project	1947	1948 (estimated)	1949 (estimated)
1. Japanese beetle control	$429,380	$435,100	$435,100
2. Sweetpotato weevil control	208,733	219,700	219,700
3. Mexican fruitfly control	180,950	188,000	188,000
4. Phony peach and peach mosaic eradication	141,438	142,500	142,500
5. Barberry eradication	404,709	413,300	413,300
6. Pink bollworm and Thurberia weevil control	987,398	724,000	724,000
(a) Suppression and prevention of spread of the pink bollworm	(684,990)	(608,800)	(608,800)
(b) Cooperation with the Mexican Government to control pink bollworm infestations to prevent spread into the United States	(129,750)	(115,200)	(115,200)
(c) Eradication of wild cotton in Florida for protection of cultivated cotton from pink bollworm	(172,658)	-	-
7. Transit inspection	64,525	65,600	65,600
8. Replacement of automotive equipment	-	78,500	78,500
Unobligated balance	6,809	-	-
Total available	2,423,942	2,266,700	2,266,700

		1948 (estimated)	1949 (estimated)
Transferred from "Exportation and Domestic Consumption of Agricultural commodities, Department of Agriculture" (for Pay Act costs)	-267,500	-	-
Transfer in the 1949 estimates to "Control of Forest Pests, Department of Agriculture"	+910,158	+705,400	-
Total appropriation or estimate	3,066,600	2,972,100	2,266,700

INCREASES AND DECREASES

It is proposed to continue in 1949 the $78,500 provided in 1948 for replacement of worn-out trucks. The $78,500 requested in 1949 is required to replace trucks which are in very bad condition. During the fiscal year 1948 it was possible to start a program to remedy the situation brought about by successive years of war conditions and lack of funds which had prevented normal replacements of trucks. However, there is still a lack of properly-conditioned trucks to transport men and equipment engaged in work to suppress or eradicate infestations of insects or plant disease infections. Therefore it is essential to continue the replacement program in 1949. The $78,500 requested for that purpose will permit the replacement of about 90 trucks, all of which are of 1939 or earlier model and have an average mileage of approximately 80,000 miles. This represents a replacement of about 10% of the total number of trucks in use on control projects.

CHANGE IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

> Insect and plant disease control: For carrying out operations or measures to eradicate, suppress, control, or to prevent or retard the spread of Japanese beetle, sweetpotato weevil, Mexican fruitflies, [gypsy and brown-tail moths, Dutch elm disease,] phony peach and peach mosaic, * * * * * [: Provided further, That in the discretion of the Secretary, no expenditures from this appropriation shall be made for applying methods of control of the Dutch elm disease in any State where measures for the removal and destruction of trees on non-Federal lands suffering from the Dutch elm disease are not in force, provided such removal and destruction are deemed essential or appropriate for the carrying on of the control program, nor until a sum or sums at least equal to such

expenditures shall have been appropriated, subscribed, or contributed by State, county, or local authorities, or by individuals, or organizations concerned: Provided, however, That expenditures incurred for removal of trees infected with Dutch elm disease from non-Federal lands shall not be considered a part of such appropriations, subscriptions, or contributions: Provided further, That no part of this appropriation shall be expended for the removal and destruction of trees infected with the Dutch elm disease except where such trees are located on property owned or controlled by the Government of the United States, or on property included within local experimental control areas].

The purpose of the proposed changes in language is to delete those provisions pertaining to the gypsy and brown-tail moths and the Dutch elm disease. The 1949 estimates propose the establishment of these items as separate subappropriations under a new appropriation item, "Control of Forest Pests."

ITEMIZATION OF ESTIMATES

Appropriation: Insect and plant disease control

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$2,972,100	$2,266,700	- $705,400
Total available for obligation	2,972,100	2,266,700	- 705,400
Comparative transfer to "Control of Forest Pests, Department of Agriculture"	705,400	- -	+ 705,400
Total obligations	2,266,700	2,266,700	- -

Obligations by Objects

Standard Classification			
01 Personal services	$1,682,400	$1,682,400	- -
02 Travel	143,800	143,800	- -
03 Transportation of things	18,200	18,200	- -
04 Communication services	16,500	16,500	- -
05 Rents and utility services	51,600	51,600	- -
07 Other contractual services	45,000	45,000	+ -
08 Supplies and materials	137,000	137,000	- -
09 Equipment	171,200	171,200	- -
13 Refunds, awards and indemnities	1,000	1,000	- -
Total obligations	$2,266,700	$2,266,700	- -

STATUS OF PROGRAM

Current activities provide for protection of American agriculture from certain destructive insect pests and plant diseases, by conducting, in cooperation with States, operations to control, suppress and prevent spread of these pests and plant diseases, including enforcement of regulations on movement of commodities that may be the means of carrying the pests and plant diseases into uninfested sections.

Among the undertakings now in process, the following are selected as typical:

1. Retarding the spread of the Japanese beetle to non-infested sections of the United States and suppressing infestations in newly located outlying areas. This involves providing for inspection and certification of commodities likely to carry the beetles from the regulated areas, comprising all or parts of 14 states in northeastern part of the United States. Scout inspections are make in uninfested sections to detect infestations so measures can be taken, retard spread from areas where new infestations are discovered. Cooperation is given by officials of state and minor civil governments, bureau field stations, and the military airforces. Expenditures for this work by state and local governments approximated $300,000 in the year ending June 30, 1947.

2. The prevention of spread of the sweetpotato weevil and its eradication from commercial-producing areas. The operations are conducted in cooperation with the States of Alabama, Florida, Georgia, Louisiana, Mississippi, South Carolina, and Texas. The activities include:

   (a) Maintenance of quarantine regulations.
   (b) Requirement of the application of sanitary and suppressive measures by growers and handlers of sweet potatoes.
   (c) Surveys both within the regulated areas and in selected areas outside thereof to locate infested farms and incipient infestation centers so that eradication measures may be applied before spread takes place.
   (d) Use of suppressive measures in infested areas adjacent to commercial plantings.
   (e) Conducting large scale tests to determine effectiveness of DDT in suppression or eradication of infestations in fields, seedbeds, storages, and in wild host plants.

3. The prevention of spread of the Mexican fruitfly from the citrus producing area of Texas. The Texas citrus area is rather remote from other fruit growing regions and danger of spread of this insect is primarily through the shipment of infested fruit rather than through flight of flies. The effectiveness of the program, which has been in force since

1927, is proved by the fact that no infestation has been established outside of the present regulated area.

4. Suppression and prevention of spread of the phony peach and peach mosaic diseases. These activities are conducted in cooperation with southern states from California to South Carolina. They are designed

   (a) To prevent distribution of host trees from areas where inspection of nurseries, budwood sources, and their environs disclose the presence of the diseases.

   (b) To locate infected trees so they can be removed under State authority in order to prevent spread of these diseases by insects to nearby trees and orchards.

5. Control of the destructive stem rust disease of wheat, oats, barley, and rye by the eradication of barberries which are the alternate host of the disease. These operations remove one of the greatest hazards to the profitable and stable production of small grains. Control work is conducted in 18 grain-growing states that annually produce over one and one-half billion bushels of grain with an average annual value during the past 10 years of about $1,340,000,000. Over the past 32 years losses from stem rust have averaged more than $32,000,000 annually. Control of this disease prevents losses to farmers, provides more grain for milling, baking, and brewing industries, and more food for consumers. The cooperating states provided cash and services totaling $222,990 for barberry eradication work for the fiscal year 1948. Some activities essential to effective operation of the program are:

   (a) Location and destruction of rust-susceptible barberries.
   (b) Surveys to determine spread and prevalence of stem rust.
   (c) Determination of races of stem rust and their distribution.
   (d) Testing new barberry species, varieties, and hybrids for rust-susceptibility.
   (e) Inspection of nurseries to eliminate rust-susceptible barberries.
   (f) Cooperation with state officials in enforcement of quarantine regulations to prevent replanting of susceptible barberries in cooperating states.
   (g) Testing of new herbicides to find better and cheaper methods of destroying barberries.

6. Eradication, suppression, control and prevention of the spread of the pink bollworm from areas where it is now present and prevention of spread of the Thurberia weevil. These operations are carried on in cooperation with all the major cotton-producing states and the Republic of Mexico, and included the following activities:

(a) Inspection. Thorough inspections for pink bollworm are made each year in the known infested areas of Texas, New Mexico, and Arizona and Mexico to determine the status of infestation so appropriate changes may be made in the control and quarantine programs. In areas not known to be infested intensive inspections are carried on at places thought to be most in danger of becoming infested and more general inspections in areas farther removed from known sources of infestation.

(b) Regulatory operations embrace supervision of the required treatments in certification of cotton and its products in the quarantined areas; requires close supervision of approximately 550 cotton gins, 46 cottonseed oil mills and approximately 40 other processing plants such as compresses. Prior to certification for movement, cottonseed from the lightly infested area must be heated to 150 degrees F. in an approved plant for 30 seconds.

Cottonseed produced in the heavily infested area must be given additional heat treatment using steam only to raise the temperature to 155 degrees F. for an exposure period of 2 minutes before being allowed movement outside the regulated area. Some 400,000 tons of cottonseed were given the heat treatment and 756,000 bales of cotton and 4,395 bales of linters were compressed at 21 compresses. A total of 26,170 inspections was made at these plants and premises of cotton processors under dealer-carrier permit, which involved driving approximately 400,000 miles, and the issuance of some 90,000 permits.

The Thurberia weevil quarantine is limited to a small cotton-producing area in Arizona which is also covered by the pink bollworm quarantine, the two quarantines being enforced as a unit without overlapping of activities.

(c) Control operations securing destruction of cotton plants in the Lower Rio Grande Valley by August 31 in order to deprive the pink bollworm of food before the advent of cool weather and thus prevent large numbers going into hibernation. Farmers in this section were required by state regulation to deposit $10 per bale in escrow, which amounted to over $2,000,000, to guarantee compliance with this requirement. In the remainder of South Texas early stalk destruction is also required by appropriate dates. Control activities also embrace spring and summer dusting of selected infested fields with insecticides to prevent a continuous build-up of infestation, which would result in spread to other areas.

(d) Cooperation with Mexico to control pink bollworm infestations to prevent spread into United States. Technical personnel are assigned to work in infested areas of Mexico to assist in establishment of comparable regulatory and control procedures to those used in similar areas in the United States. Entomologists are assigned to work in the heavily infested Laguna area to advise on the application of insecticidal control measures involving the use of DDT and other new insecticides.

7. Inspection at strategically located transportation centers to intercept shipments of commodities, moving in apparent violation of Federal domestic plant quarantines. These activities provide needed safeguards against hazard of the long-distance artificial spread of the pests subject to these quarantines. Inspectors cooperate with states by reporting to them apparent violations of their state nursery inspection and quarantine regulations. Regulations pertaining to movement of plants and plant products into and out of the District of Columbia are enforced by inspectors located in Washington, D. C.

Selected Examples of Recent Progress, Current Activities and Trends: Among recent accomplishments in which the Bureau has participated are the following:

1. Japanese Beetle Control

(a) Certification of Commodities. In view of the importance of fresh vegetables, fruits, and flowers reaching markets with the least possible delay but free of Japanese beetles, recently developed methods of treating such products prior to certification have been approved. The application of DDT dusts to the empty and then loaded refrigerator cars and trucks carrying white potatoes to make and keep them free of living Japanese beetles was authorized on May 17, 1947. This method not only permits immediate movement of the produce, but costs less than fumigation with methyl bromide. During the year ending June 30, 1947, approximately 75,000,000 plants and several thousand car and truck loads of farm products were certified for shipment to nonregulated areas.

(b) Inspection and Treatment of Airplanes. Insecticides were applied to kill adults of the Japanese beetle in planes at 21 infested commercial and military airfields prior to the departure of more than 10,000 flights for destinations beyond the regulated areas. Twenty-eight hundred beetles were removed from clothing and baggage of personnel boarding planes after treatments. The two main fields involved were the Washington National Airport and LaGuardia Airport.

(c) Dissemination Survey and Cooperative Controls. During the 1947 field season scout inspection was done in 666 localities outside of the regulated areas in 38 states. Included were 165 military and commercial airfields in 35 states. Beetle collections were made in 105 localities in 14 of the 38 states. All of the beetle collection localities are east of St. Louis, Missouri. Included in the 105 localities were 8 airfields in Florida, Georgia, Virginia, South Carolina, and Tennessee. It was necessary to extend the Federal quarantine regulated areas to include only small additional sections in Virginia, Maryland, and New York. Beetle occurrence in the other localities was considered to be non-hazardous after application of chemical treatments or because of the small numbers collected. A total of 560 acres was treated with lead arsenate or DDT in 25 localities in 8 states. DDT foliage treatments were applied in 38 localities in 10 states. This type of treatment was used extensively this year for the first time, and promises to be a practical means of suppressing the beetle at outlying collection points. All treatments are on a cooperative basis.

2. Sweetpotato Weevil Control

During the 10-year period in which this work has been conducted, eradication has been effected on 71.6 percent of the 9,144 farms found infested in eradication areas in the 7 states and in 50 percent of the counties found infested.

During the year ending August 31, 1947, progress has been made as follows:

(a) Eradication has been accomplished on 905 previously infested farms.
(b) Weevils have been eliminated from 8 counties in 4 states.
(c) Eighty percent of the recently found infestations in south central Georgia have been eliminated.

At the end of August there remained 2,593 active infestations in the 7 states, of which 1,868 were in the heavy-producing area of central Louisiana where control work was recently undertaken because of the great hazard of spread through commercial movement of potatoes. Much work remains to be done in this area and in south central Georgia to consolidate and further the advantages gained there.

3. Mexican Fruit Fly Control

Despite increased citrus production and continued plantings of new groves, it is expected that the plan now in operation, which has proved successful in the past, will continue to be successful in the future. The program provides for:

(a) Trapping to detect the presence of flies in citrus plantings.
(b) Inspection to find larval infested fruit.
(c) Inspection of groves, packing plants, processing establishments, and treating rooms to assure that the requirements of of the quarantine are complied with.

(d) Supervision of treatment of fruit when required to prevent shipment of fruit containing live fruitfly larvae.
(e) Certification of fruit found safe for shipment either after inspection or treatment.
(f) Operation of road station to regulate truck and passenger vehicles carrying fruit from the area.
(g) Trapping and inspection in the Mexican border towns adjacent to the regulated area.

There does not appear, however, any possibility that the insect can be permanently eradicated from Texas citrus plantings, as the fly moves in annually into Texas from its native home in northeastern Mexico. The mounting production of citrus fruit, however, is creating a problem in that the harvesting season is now extending over well into the summer months, which necessarily entails a longer inspection and sterilization program than was necessary when the crop was smaller. Under present quarantine regulations the harvesting season for Texas grapefruit has to be completed by June 15. It has been necessary, however, to extend the season into early July within recent years and it is expected that the 1947-48 harvesting season will last well into, if not completely through, the month of July.

4. Phony Peach and Peach Mosaic Eradication

(a) Nursery inspection effectively prevents spread. In 1947 inspections were made of 482 nurseries, containing more than 21 million host trees, and 43 budwood sources in 14 states. Only 9 nurseries failed to meet safe requirements for interstate movement of regulated host stock. Interstate spread through nursery stock is not known to have taken place since this work was started 10 years ago.

(b) Phony disease has been eliminated from orchards in 7 states and its incidence reduced by 87 percent in 7 others during a decade of activity. In those 14 states 178 counties, out of a total of 262, have been freed from the malady.

(c) No "phony" infection was found for the third consecutive year in 7 counties and only 4 additional counties were found to have infected trees during orchard inspections of the last year.

(d) No new mosaic infected counties were found in 1947.

(e) Less peach mosaic found in 1947. Less than 3,600 of more than 2 million orchard trees examined were found infected.

(f) Heavy phony infection centers remain in Alabama and Georgia commercial areas. The current control program is holding the disease in check in this area, but little progress is being made in suppression and studies are being made of possible additional methods of attacking the problem.

5. Barberry Eradication

The control areas from which barberries are being removed in the participating states total 1,043,886 square miles, of which 777,469, or about 75 percent, are on maintenance. This area has been freed of rust-spreading barberries and is scheduled for no further organized crew work. The remaining 25 percent includes some initial work and some rework in heavily infested and persistent barberry areas. Rework fell behind schedule during the war years and 48,135 square miles of scattered units previously cleared of barberries became reinfested. Increased facilities resulted in reworking 18,820 square miles in 1946, of which 1,925 square miles were placed on maintenance. The last photograph following page 409 shows the effectiveness of keeping the rework on schedule. The status of the work as of December 31, 1946, is summarized in Table 2 and illustrated by the map following page 409. Barberries were removed from areas aggregating 21,930 square miles in 1946. (See Table 1.)

Wheat losses from stem rust were light in most states during 1946, but barberry infested areas in Pennsylvania, Virginia, and West Virginia caused statewide losses of from 3.5 to 5 percent. Oat losses were only 1 percent in the control area except in Virginia where damage amounted to 2 percent.

Barberries produce new races of the disease that attack new and improved varieties of grain. In 1946, stem rust races 56, 38, and 17 which attack wheat were widespread. Races 8 and 10 of oat stem rust increased rapidly and comprised 51.5 percent of all isolates. Vicland, Boone, Tama, and other improved oat varieties deriving their rust-resistance from Richland are susceptible to these races. Race 7 of oat stem rust was reported from New York. It attacks some of the newer resistant varieties, such as Clinton, Benton, Bonda, and Mindo.

Of the 82 barberry species, varieties and hybrids tested for susceptibility of stem rust, 52 were found susceptible and prohibited from shipment into the protected states under Quarantine 38. Requests for permits to ship barberries under provisions of Federal Quarantine 38 were granted to 43 nurseries.

Various formulations of 2,4dichlorophenoxyacetic acid (2,4-D) and different concentrations of sodium chlorate and ammonium sulfamate were tested on native barberries in the Virginias and Colorado. Preliminary results indicate that ammonium sulfamate may be a practical substitute for salt and that would reduce labor and transportation costs.

Table 1 - Results of Barberry Eradication Work, Calendar Year 1946

State	Area Surveyed	Properties Cleared		Bushes Destroyed		
		New	Old	Berberis Vulgaris	Native Species*	Total
	Sq. Mi.	No.	No.	No.	No.	No.
Colorado	312	9	69	26	871,745	871,771
Illinois	527	26	136	868	6	874
Indiana	200	14	46	156	2,523	2,679
Iowa	373	24	136	982	-	982
Michigan	5,603	150	219	5,897	-	5,897
Minnesota	661	10	26	234	-	234
Missouri	297	13	11	414	-	414
Montana	480	1	4	223	-	223
Nebraska	592	5	6	750	-	750
North Dakota	280	-	3	22	-	22
Ohio	464	47	47	2,209	-	2,209
Pennsylvania	-	29	597	24,755	-	24,755
South Dakota	4,402	3	9	31	-	31
Virginia	106	76	141	-	7,257,971	7,257,971
Washington	2,756	318	20	8,212	-	8,212
West Virginia	58	12	69	329	5,365,986	5,366,315
Wisconsin	4,692	56	211	1,734	-	1,734
Wyoming	127	14	4	131	-	131
Total	21,930	807	1,754	46,973	13,498,231	13,545,204

* Berberis Fendleri A. Gray and B. canadensis Mill.

Table 2 - Status of Barberry Eradication through 1946

State	Square Miles			No. of Properties with Barberries			Barberries
	In Control Area	On Maintenance	Unworked or Requiring Rework	Cleared to Date	On Maintenance	Requiring Work	Destroyed to Date
Colorado	74,685	71,285	3,400	2,796	1,335	1,461	18,072,965
Illinois	56,043	34,839	21,204	19,667	8,202	11,465	2,739,665
Indiana	36,045	26,943	9,102	6,910	4,869	2,041	402,935
Iowa	56,167	30,606	25,561	15,248	6,538	8,710	1,285,599
Michigan	57,481	45,445	12,036	17,759	10,050	7,709	6,635,012
Minnesota	80,883	35,258	45,625	8,894	4,482	4,412	1,000,576
Montana	146,316	145,410	906	638	344	294	48,680
Nebraska	77,268	63,940	13,328	4,812	4,167	645	146,981
North Dakota	70,183	66,300	3,883	1,074	968	106	39,425
Ohio	40,740	23,820	16,920	17,121	6,156	10,965	3,276,961
South Dakota	76,868	75,802	1,066	1,498	1,193	305	136,033
Wisconsin	54,852	20,542	34,310	17,103	5,331	11,772	5,672,923
Wyoming	94,487	94,427	60	139	122	17	5,662
Subtotal	922,018	734,617	187,401	113,659	53,757	59,902	39,463,417
Missouri	36,016	25,006	11,010	1,407	443	964	20,847
Pennsylvania	27,073	4,261	22,812	8,720	5	8,715	13,857,553
Virginia	11,821	1,418	10,403	3,985	2	3,983	147,305,116
Washington	32,662	2,381	30,281	954	-	954	40,573
West Virginia	14,296	9,786	4,510	2,044	-	2,044	136,620,244
Subtotal	121,868	42,852	79,016	17,110	450	16,660	297,844,333
Grand Total	1,043,886	777,469	266,417	130,769	54,207	76,562	337,307,750

6. Pink Bollworm and Thurberia Weevil Control

The following paragraphs summarize conditions at the end of last growing season. Inspections made during the fall of 1947 and which are still under way disclosed the presence of pink bollworm in new areas. Information is being developed and the situation is changing as the work progresses.

(a) Inspection in 1946 for pink bollworm in south Texas showed a decrease in infestation in Cameron and Hidalgo Counties and an increase in Maverick, Duval, Jim Wells, Matagorda, Calhoun, and Refugio. No pink bollworms were found for the third consecutive cotton season in the quarantined area of southwestern Louisiana and the quarantine has been removed from that state. A small area of heavy infestation was discovered in Maricopa County, Arizona.

(b) Negative inspections in 1946 were made in Florida, South Carolina, Georgia, Alabama, Louisiana, Mississippi, Oklahoma, California, and the remaining area of Texas except in Hockley and Wharton Counties.

(c) An area embracing parts of Calhoun and Refugio Counties, which showed considerable pink bollworm infestation, was dusted several times with a mixture of DDT and benzene hexachloride, beginning at the stage when the cotton was susceptible to infestation in the spring. This control procedure was apparently very effective and knocked out a potential source of spread of the insect. The area in the Salt River Valley referred to above was also dusted with a mixture of DDT and benzene hexachloride and as far as is now known (December 1947) completely eradicated this dangerous infestation.

(d) Following finding of infestation in Wharton County, Texas, approximately 1,000,000 pounds of cottonseed were treated for over 800 farmers to eliminate pink bollworm infestation and make it safe for planting the 1947 crop. Additional seed in the hands of growers was disposed of through feeding or delivered to designated oil mills, where it was heat-treated on arrival. Installation of some 25 cottonseed heating machines at the gins in Wharton County was supervised in the spring of 1947.

(e) Infestation of the pink bollworm in wild cotton in southern Florida showed approximately 1/10 of 1 percent in the 1946-47 season as compared to a high of 4 percent in some areas at the inception of the program. This low infestation has prevented reinfestation of cultivated cotton in Florida and Georgia, from which the pest was eradicated in 1936.

EVERY RUST SPREADING BARBERRY BUSH SHOULD BE DESTROYED

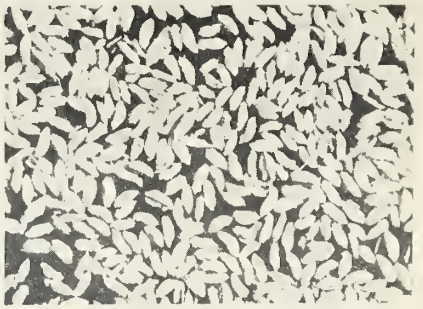
TO PREVENT EARLY DESTRUCTIVE STEM RUST EPIDEMICS

THIS BARBERRY BUSH

CAUSED THIS STEM RUST

THE STEM RUST RUINED THIS GRAIN FIELD

THE PLANTS PRODUCED
THIS SHRIVELED WHEAT

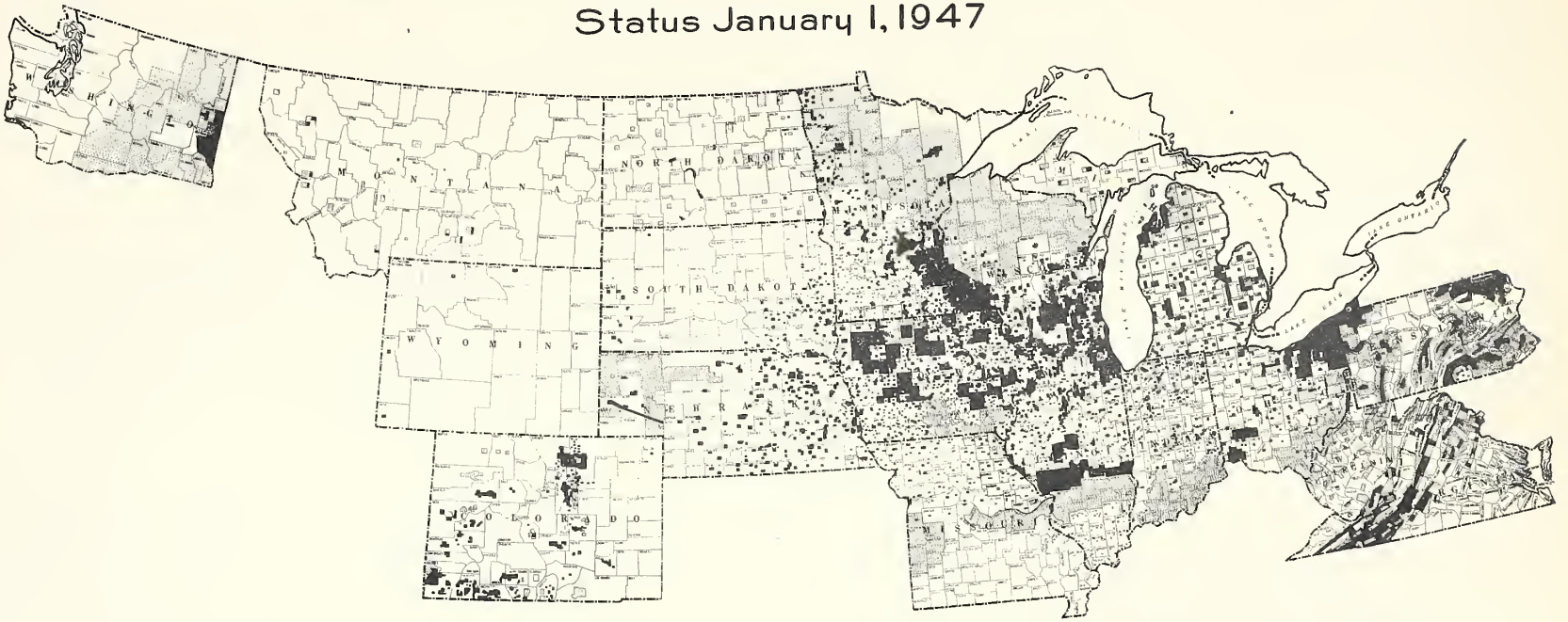


INSTEAD OF NORMAL WHEAT
LIKE THIS

BARBERRY BUSHES ARE A MENACE TO PROFITABLE GRAIN PRODUCTION

BARBERRY ERADICATION

Status January 1, 1947



LEGEND	SQUARE MILES	PERCENTAGE OF EACH AREA CLASS BY STATES																	
	TOTAL AREA	COLO.	ILL.	IND.	IOWA	MICH.	MINN.	MO.	MONT.	NEBR.	N.DAK.	OHIO	PA.	S.DAK.	VA.	WASH.	W.VA.	WIS.	WYO.	TOTAL AREA
AREA REQUIRING INTENSIVE WORK	107,377	3	27	4	37	12	17	3	.1	5	.3	23	20	1	18	7	6	21	1	10
AREA REQUIRING FARMSTEAD WORK	159,040	2	11	21	9	9	40	13	.5	12	5.2	18	31	0	8	86	13	41	0	15
AREA ON MAINTENANCE	777,469	95	62	75	54	79	43	84	99.4	83	94.5	59	49	99	74	7	81	38	99.9	75

ERADICATION WORK IS EFFECTIVE

INITIAL WORK FOLLOWED BY PROPERLY TIMED REWORK RESULTS IN THE COMPLETE ELIMINATION OF THE BARBERRY

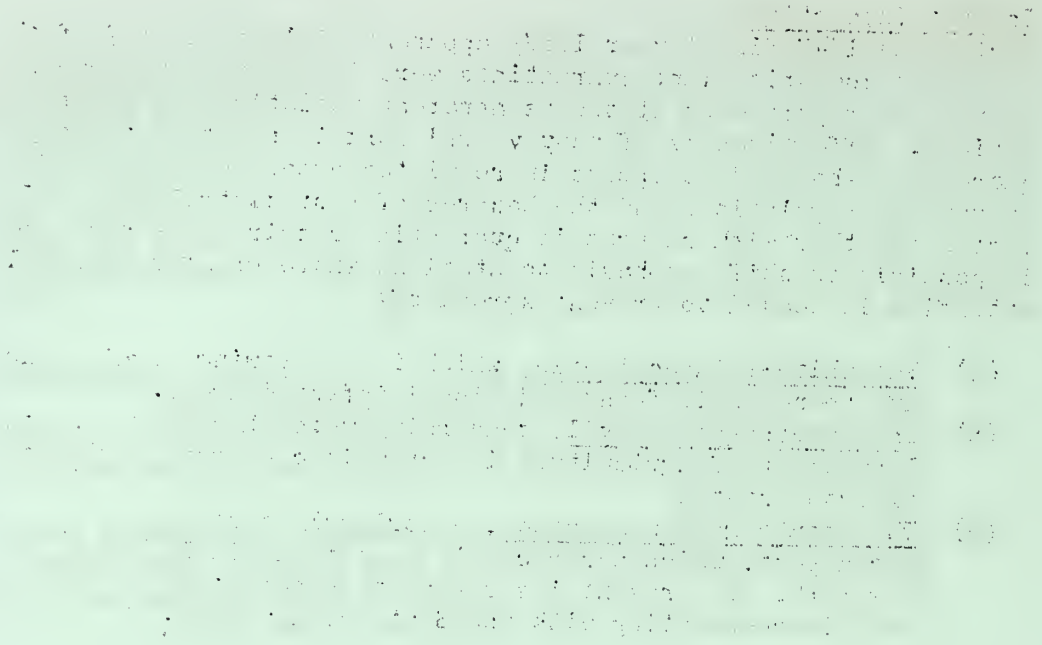
BEFORE BARBERRY ERADICATION - 1937

AFTER BARBERRY ERADICATION - 1944

7. Transit Inspection

During the 1947 fiscal year 1,689 apparent violations of 7 of the 8 Federal domestic plant quarantines were intercepted and 660 shipments were reported to states as apparent violations of their regulations. Effectiveness of many years' work in relation to some quarantines has made shippers in regulated areas more aware of quarantine regulations and the hazards of pest distribution. This factor together with changes in quarantine requirements has made it possible to shift emphasis to stations where greater seasonal attention is needed to prevent spread of:

(a) The white-fringed beetle, which is of growing significance due to recently found additional infested areas.
(b) The sweetpotato weevil, concerning which the United States Department of Agriculture is actively cooperating with the affected states.
(c) The potato golden nematode, a seriously destructive introduced pest, which has recently been found in Long Island, New York. To prevent its spread to other states, the Department is cooperating with the State of New York.



(d) Foreign Plant Quarantines

Appropriation Act, 1948	$2,000,000
Budget estimate, 1949	2,212,000
Increase, 1949	+212,000

SUMMARY OF INCREASES AND DECREASES, 1949

To provide for enforcement of Public Law 290, 80th Congress, regarding entry of nursery stock into the United States	+ 38,000
For disinsecting aircraft moving between Hawaii and the mainland and aircraft entering the United States at various southern ports	+ 156,000
For repair of plant quarantine inspection house at Hoboken, N. J., and six fumigation houses located along the Mexican border	+ 28,000
Elimination of non-recurring item provided in the 1948 Act for replacement of worn-out automotive equipment	- 10,000

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)	Increase or decrease
1. Foreign plant quarantines	$1,734,316	$1,990,000	$2,212,000	+ 222,000 (1)
2. Replacement of automotive equipment	- -	10,000	- -	- 10,000 (2)
Unobligated balance	2,684	- -	- -	
Total available	1,737,000	2,000,000	2,212,000	+ 212,000
Transferred from "Exportation and Domestic Consumption of Agricultural Commodities, Department of Agriculture (for Pay Act costs)	- 185,000	- -	- -	
Total appropriation or estimate	1,552,000	2,000,000	2,212,000	

INCREASES

The net increase of $212,000 under this item for 1949 consists of:

(1) An increase of $222,000 composed of:

(a) An increase of $38,000 to provide for the enforcement of post-entry quarantine requirements resulting from the amendment to the Plant Quarantine Act of 1912 approved July 31, 1947 (Public Law 290, 80th Congress).

The Problem and Its Significance: Under the terms of this amendment there will be a large volume of plant material entering the United States under permit, subject to post-entry quarantine.

State quarantine officials have agreed to cooperate in the enforcement of the post-entry quarantine requirements that will be enforced as a result of this amendment to the Plant Quarantine Act. The increase is to assure uniformity in action and to enable the Department to carry out its responsibilities for the post-entry quarantine requirements.

Plan of Work: The proposed increase will provide the services and travel expense of four especially trained technical supervisors to coordinate the activities; and three clerks to record importations, maintain records of post-entry quarantine handling, and to prepare, issue and record releases, etc.

(b) An increase of $156,000 to provide for disinsecting aircraft moving between Hawaii and the mainland and aircraft entering the United States at various southern ports.

Objective: To safeguard against the further spread of several destructive insect pests, both in Hawaii and on the mainland.

The Problem and Its Significance: To provide protection to public health from diseases that may be carried by insects which may be transported by aircraft from foreign countries the Public Health Service, has, for some time, required treatment, in flight of airplanes arriving from certain foreign areas. This treatment is applied while passengers and crew are in the plane. It is considered effective against the common disease-carrying insects such as mosquitoes and many kinds of flies. Tests have demonstrated, however, that it is not effective against many of the important insects which are injurious to agriculture. It has also been demonstrated that treatments that are effective against these agricultural pests cannot be applied with safety when passengers and crew remain in the planes.

Observations have established that many insects which are pests of agriculture enter planes and may be transported long distances as "hitch-hikers" or stowaways. During the recent development and extensive use of aircraft in long flights certain agricultural insect pests have been discovered in new areas and there is good reason to believe that they were introduced and became established as a result of carriage by planes as "hitch-hikers." A partially winged grasshopper, native to Texas and southwestern United States,

which does not fly, has been discovered as established infestation in the grassland along the runway of an airfield in Hawaii. There are other cases which may be cited to illustrate the hazard. The examination of planes at a number of ports in the United States has disclosed the presence of insects which are known to occur only in the areas from which the planes have come.

The hazard to agriculture from introduction of pests by this means has been recognized and established only recently. Of equal significance is the fact that means of providing protection have been devised only within recent months, and even now the facts available as to fully effective treatments are inadequate. The information is, however, sufficient to assure that considerable protection can be secured. It is believed essential that the best known practices be applied to prevent the introduction of the wide variety of insects that are potential pests of agriculture which may be transported as "hitch-hikers."

To secure experience and develop procedures in reference to the application of treatments that could be used; and to provide protection to Hawaii and the mainland, a program of disinsecting aircraft arriving in Hawaii from South and West Pacific areas was inaugurated during the summer of 1946. This important operation was conducted to a very large extent at the expense of other phases of essential plant quarantine work, and would not even then have been possible had it not been for the interest of those associated with it who contributed voluntarily much uncompensated overtime. These activities are being continued, and should be enlarged and placed on a sound financial footing. Several destructive insect pests occur in Hawaii which do not occur on the mainland and many of the pests present on the mainland do not occur in Hawaii. It is important to safeguard against further spread of these pests by disinsecting aircraft moving between the Territory and the mainland. This work can all be done in Hawaii. Planes destined to the mainland will be treated prior to departure and planes from the mainland will be treated upon arrival in Hawaii.

Similar protection by treatment of planes is just as urgent and essential and should be provided for planes from tropical areas arriving on the East and Gulf Coasts, and in the South. Many of the planes arriving from those areas can be disinsected in Puerto Rico as can also those in service between Puerto Rico and the mainland. Disinsection of the latter group would be performed in Puerto Rico on the same basis as those flying between Hawaii and the Mainland. Since there are a number of direct flights from countries to the south to mainland ports, however, it will also be necessary to arrange for the treatment of planes at certain points in the continental United States. Contingent upon further shifts in the traffic pattern, it is proposed to inaugurate the program at San Juan, Miami, New Orleans, Mobile, and Houston. If studies now under way result in preflight inspection of planes in Mexico City, those planes can be treated there rather than at such points as Brownsville, San Antonio, El Paso, and Los Angeles; otherwise, a treating program will also be inaugurated at these last named ports.

Plan of Work: The proposed increase will provide for 8 additional inspectors in Hawaii and 28 additional inspectors in Puerto Rico and on the mainland. Without this additional personnel, the program of disinsecting aircraft cannot be placed on a sound footing.

(c) An increase of $28,000 is requested to repair the plant quarantine inspection house at Hoboken, New Jersey, and six fumigation houses located along the Mexican border. Some of these houses were built a few years prior to the war, others as far back as 1918. Their total cost was approximately $600,000. War-time shortages of labor and material have prevented their receiving any repairs in recent years. In order to protect the original investment, provide for the continuation of efficient service to shippers, importers and the general public, and particularly to guard against the escape or release of dangerous gases, these houses and their facilities need repairs estimated to cost $28,000.

(2) A decrease of $10,000 in the project "Replacement of Automotive equipment" due to the elimination of a non-recurring item provided for in the 1948 Act.

ITEMIZATION OF ESTIMATES

Appropriation: Foreign plant quarantines

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$2,000,000	$2,212,000	+$212,000
Total obligations	2,000,000	2,212,000	+ 212,000
Obligations by Objects			
Standard Classification			
01 Personal services	$1,813,800	$1,963,945	+$150,145
02 Travel	25,100	37,700	+ 12,600
03 Transportation of things	16,500	26,600	+ 10,000
04 Communication services	10,000	10,400	+ 400
05 Rents and utility services	25,300	26,300	+ 1,100
07 Other contractual services	19,200	49,055	+ 29,855
08 Supplies and materials	45,100	58,800	+ 13,700
09 Equipment	45,000	39,200	- 5,800
Total available	$2,000,000	$2,212,000	+ 212,000

STATUS OF PROGRAM

Foreign plant quarantine work is conducted in all maritime and border states, and in Missouri, Alaska, Hawaii, and Puerto Rico. Work is performed in cooperation with Customs, Immigration, and Public Health Service personnel, and in California, Florida, Hawaii, and Puerto Rico with the active cooperation of the State, Territorial, and Insular plant quarantine services, respectively. The effort is to prevent the further introduction into and spread within the United States of injurious foreign plant pests. The significance of the program lies in the fact that unless there is an effective means of protecting American agriculture, horticulture, and forestry from further foreign pest entry, the agricultural productivity of this country may be permanently impared at a cost of billions of dollars annually. Among the current undertakings of the foreign plant quarantine program, the following are selected as typical:

1. To provide foreign plant quarantine protection by

   (a) Providing plant quarantine inspection service at principal surface and airports of entry to examine incoming carriers (vessels, vehicles including railway cars, automobiles, etc., aircraft, pedestrians), their stores and furnishings, cargoes, and baggage for prohibited and restricted plant material and to inspect imported plant material for injurious foreign insect pests and plant diseases.

   (b) Treating or supervising treatment of imported plant material requiring such action to prevent the entry of injurious foreign plant pests.

   (c) Examining foreign mail packages for restricted or prohibited plant material and inspecting plant material authorized importation by mail for plant pests.

   (d) Inspecting, treating, and certifying certain plants and plant products of Hawaii and Puerto Rico for movement to the mainland and examining carriers, their stores, cargoes, and baggage, and mail moving to the mainland for the purpose of preventing the spread thereto of the pests of those Islands.

   (e) Preflight clearance of aircraft at points generating sufficient non-stop traffic to the mainland of the United States to make the operation practicable.

2. To assist the exporters of domestic plants and plant products by inspecting and certifying their exports to meet the sanitary import requirements of the countries of destination.

Selected Examples of Recent Progress and Current Problems:

1. Prevention of plant pest introduction and spread through air commerce is now an outstandingly important foreign plant quarantine problem because of:

(a) The increasing work load in civil air traffic requiring plant quarantine service, including inspection in Hawaii of planes from the mainland, due to (1) schedules tending more and more to require 24-hour day work assignments, (2) larger aircraft with longer passenger lists, and (3) a greater quantity and variety of products carried.

(b) The rapidly mounting ratio of aircraft found with potential pest-bearing materials, indicating a high order of pest risk to American agriculture associated with foreign air commerce.

(c) The invasion of the interior of the United States by aircraft not stopping for plant quarantine clearance near the borders.

(d) The ease with which plant pests in or on host material and as hitchhikers and stowaways in airplanes may be quickly transported to this country.

2. The strategic position of Hawaii through which all trans-Pacific air traffic funnels enroute to the mainland has made it practicable to give plant quarantine clearance to aircraft there rather than on the mainland, (flights to the mainland are not yet disinsectized) a sound quarantine procedure of removing pest risk at or nearer origin, at a saving of inspection personnel for the Government and with less delay, inconvenience, and cost to the carriers, passengers, and cargo. This procedure involves the inspection and clearance for plant quarantine purposes of the airplane, passenger and crews' effects, stores (i.e. lunches etc.), and cargoes prior to departure of the airplane for the mainland, and obviates the necessity for any further plant quarantine examination of the airplane upon arrival on the mainland. The success of this program for plant quarantine purposes prompted the Bureau of Customs, the Immigration and Naturalization Service, and the Public Health Service to make their preflight examinations in Hawaii and to study along with the Bureau the feasibility of a similar undertaking in San Juan, P. R., Anchorage, Alaska, and Mexico City, D. F., where considerable air traffic originates for non-stop movement to various U. S. destinations.

3. Post-war mail packages from abroad are again predominantly civilian mail. Despite reduced volume of packages inspected in 1947 there was a relative increase in packages refused entry for plant quarantine purposes or released under permit and a large increase (88% over 1946) in packages which had to be diverted for further disposition, such as treatment. Despite this relatively greater potential pest risk with current foreign mail it was necessary to transfer some inspectors from foreign mail inspection to meet seemingly more important demands associated with air and surface traffic.

4. The expansion of shipping far beyond pre-war levels, despite the decline in shipping for military purposes, (ships inspected in 1947

were 43% more than in 1941, the last pre-war year), and the resultant expanding work load demand to be met by an already insufficient staff presents a problem which is further complicated by the relatively greater pest risk inherent with commercial shipping. The volume of passenger train, and vehicular traffic from Mexico increased in 1947, which with heavy pedestrian traffic, also presented an expanding work load demand.

5. Post-war foreign commerce has developed an upward trend in work load in the inspection, treatment, and certification of cargoes. The recent promulgation of a quarantine regulating the entry of cut flowers will add to the demand for plant quarantine service from a staff now too small to give essential foreign plant quarantine protection. Cargo importations of foreign plant material increased 21% in number in 1947 over 1946; interceptions of unauthorized plant material in cargo increased 23%, and plant pest interceptions increased 9%. Inspections of freight cars from Mexico increased 10.6% in 1947 over 1946.

6. There was a 52% increase in 1947 over 1946 in the number of certificates issued on the basis of inspection of American grown plant material for export to meet the sanitary import restrictions of foreign countries of destination, which illustrates the rapidly growing demand for this service by the American exporter.

Receipts. During the fiscal year 1947, receipts of $33,124.00 resulted from the fee of $4.00 a car charged for fumigating railroad cars entering this country from Mexico. This fumigation is required as a safeguard against the introduction of insects, primarily those attacking cotton. The estimated receipts from this source for 1948 are $34,000.00. Receipts from this source are deposited in the general fund of the Treasury.

(c) Control of Emergency Outbreaks of Insects and Plant Diseases

Appropriation Act, 1948	$2,050,000
Budget estimate, 1949	2,050,000
Change, 1949	- -

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
1. White fringed beetle control	$ 836,404	$ 836,000	$ 836,000
2. Hall scale eradication	73,378	110,000	110,000
3. Pear psylla control	449,720	139,000	- -
4. Grasshopper and Mormon cricket control	1,036,657	671,000	- -
5. Chinch bug control	10,995	11,000	- -
6. Golden nametode control	176,000	145,000	- -
7. General surveys	140,107	120,000	- -
8. Citrus canker survey	- -	18,000	- -
Reserve for future allotment (1)	- -	- -	1,104,000(1)
Unobligated balance	76,585	- -	- -
Total available	2,799,846	2,050,000	2,050,000
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+ 154	- -	- -
Total appropriation or estimate	$2,800,000	$ 2,050,000	$ 2,050,000

(1) It is not practicable to indicate with satisfactory accuracy a year in advance the amounts which may be required for specific projects, since the amounts to be allotted depend largely upon factors, including weather, that cannot be predicted.

ITEMIZATION OF ESTIMATES

Appropriation: Control of emergency outbreaks of insects and plant diseases.

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$2,050,000	$2,050,000	- -
Total obligations	2,050,000	2,050,000	- -

Item	Estimate, 1948	Budget Estimates, 1949	Increase (+) or decrease (-)
Obligations by Objects			
Standard Classification		(a)	(a)
01 Personal services	$1,272,700	$ 702,600	- 570,100
02 Travel	155,000	50,800	- 104,200
03 Transportation of things	80,000	9,600	- 70,400
04 Communication services	12,000	4,400	- 7,600
05 Rents and utility services	52,000	14,400	- 37,600
06 Printing and binding	1,500	1,000	- 500
07 Other contractual services	72,000	15,200	- 56,800
08 Supplies and materials	319,800	100,300	- 219,500
09 Equipment	80,000	44,700	- 35,300
10 Lands and structures	3,000	1,000	- 2,000
13 Refunds, awards, and indemnities	2,000	2,000	- -
Grand total obligations	2,050,000	946,000	-1,104,000
Reserve for future allotment	- -	+1,104,000	+1,104,000
Total available	2,050,000	2,050,000	- -

(a) In view of the emergency nature of the work under this appropriation and the projects thereunder and because of the uncertainty as to the scope and volume of control activities which will be required it is not possible to forecast with reasonable definiteness the funds that will be obligated for all projects under this appropriation.

STATUS OF PROGRAM

A substantial part of the funds provided for this program in the past has been used to enable the Department to cooperate with States in protecting crops from widespread outbreaks of grasshoppers, Mormon crickets, and the chinch bug; to control and prevent spread of the white-fringed beetle and the pear psylla and to control the golden nematode. Work has been done from year to year against other pests which occur as incipient outbreaks and present serious threats to agriculture. In general the work is done on a crop year basis. It is contemplated that similar activities will be conducted during the fiscal years 1948 and 1949. The projects are discussed briefly below:

Grasshopper and Mormon Cricket Control

To protect crop and grazing lands the following program was carried out in 1947:

(a) Grasshoppers: 25,176,000 pounds of bait was spread on crop, marginal, grazing and idle lands to protect 1,258,800 acres in cooperation with 22 western, mid-western and central states. Local agricultural agencies including farmers and ranchmen in more than 400 counties contributed over 50% of the cost of the program by mixing and spreading the bait.

Mormon crickets: Bait for Mormon cricket control amounted to 3,024,000 pounds used to protect 402,400 acres of crops and forage.

(b) Surveys conducted in 1947 indicated that the grasshopper infestation to be expected in 1948 will be greater, and that the Mormon cricket infestation in 1948 will be as large as in 1947. It is significant that Melanoplus mexicanus a singularly destructive species to all varieties of crops, is on the build-up.

Chinch Bug Control

Weather conditions in 1947 kept chinch bugs from becoming a major threat to crops. Based upon 1947 surveys, serious chinch bug outbreaks are not expected over extensive areas in 1948. Local damaging infestations may develop if spring weather is conducive.

White-Fringed Beetle Control

The white-fringed beetle, a seriously destructive crop pest of South American origin, is known to have been present in this country since 1936. The Bureau cooperates with the affected States in the suppression and prevention of spread of this pest which is now known to be present on approximately 200,000 acres in seven South Atlantic and Gulf Coast States. Current activities include:

(1) Surveys to discover and delimit infestations.

(2) Suppressive measures to reduce danger of spread around shipping points and warehouses, and on crops and other articles liable to carry the pest in commerce.

(3) Treatment and sanitation measures to rid products and articles in commerce from beetles as required by quarantine regulations.

Additional white-fringed beetle infestations were found in 1946 and to June 30, 1947, in 85 localities in 51 counties of Georgia, and in 2 places in 2 counties of South Carolina, as a result of discovery of infestations in 2 Georgia nurseries and tracing shipments that had been made from them. Infestations were also discovered in Montgomery, Birmingham, and Clanton, Alabama, and in Santa Rosa County, Florida. Surveys in 23 States outside of those known to be infested and in the District of Columbia were made but no infestations were found therein.

Improved machinery, insecticides, and methods of application, both by ground and air, have vastly improved control measures.

DDT is highly effective against white-fringed beetle larvae when cultivated into the soil at the rate of 10 pounds per acre. The treatment lasts for 3, 4, or perhaps more years. This treatment, supplemented by foliage applications, gives promise of more effectively curbing the pest.

Pear Psylla Control

Intensive surveys late in the season of 1946, during the winter, and early in the spring of 1947, revealed a very marked increase in the number of properties infested with the pear psylla in the important commercial pear-growing areas of Washington, including 88 properties in the Wenatchee Valley, and 8 in the Yakima Valley. These findings doubled the number of trees to be sprayed. It appears likely that most of these infestations are of recent origin, and have resulted from wind spread, perhaps from a considerable distance. This discovery made it apparent that the continuance of the program would lead to a commercial control program in much of the area involved. Because of this factor and the scarcity of nicotine, the control program was very much reduced, and plans were made to discontinue the pear psylla control project at the end of the 1947 season. These plans were reported promptly after the development of an understanding with the cooperating state and other agencies. The results of a limited survey carried on late in the summer and during the fall of 1947 confirmed those of the previous season.

Hall Scale Control

In the fumigation program against Hall scale, which had been found in limited areas near Chico and in Oroville, California, 10,821 trees, or about two-thirds of those in the areas subject to attack by this scale insect, were treated with cyanide during the 1946-47 season. The fumigation program is being intensified to include all trees in infested blocks during the winter of 1947-48. Two oil sprays were applied to supplement the fumigation. It is intended to continue the treatment on each infested property for at least two years after the last living scale has been found. Continuation of the intensive survey and inspection program revealed an infestation near Davis, California, in October; otherwise no material extension of the infested area has been found, and no new infestations in either outlying or distant areas.

Golden Nematode Control

The golden nematode is a destructive introduced white potato pest which is known to be present in this country only in parts of Long Island, New York. The Bureau cooperates with New York and other States in surveys to locate infestations of this pest and with New York in efforts to suppress it and prevent its spread.

3,007 acres were found to be infested in 1947 bringing the total of known infested land to 5,684 acres on 134 Long Island properties by November 30, 1947.

Nearly 3,500 infested acres were taken out of production by rental by New York State in 1947.

Potatoes from infested land restricted to safe markets in order to prevent nematode spread to other potato areas.

Infested land was fumigated in 1946. 1,577 acres were so treated. Results were 85 percent effective.

Aroostook County, Maine, surveys were negative and incomplete results from work in Steuben County, New York, have not revealed golden nemas. Certain Long Island growers also produce crops in these two counties.

General Surveys

Every year since 1943 general surveys have been made to determine the status of infestations of several important insect pests for the purpose of permitting the most effective use of limited supplies of insecticides and to enable farmers to protect crops by having timely information. The current season's program includes surveys with regard to such pests as potato rot nematode, screwworm, Hessian fly, pea and bean insects, insects attacking cotton, and insects attacking fruit.

Citrus Canker

Citrus canker is a highly infectious, persistent, and destructive citrus disease which formerly prevailed in Gulf Coast States. A Federal-state sponsored program virtually eliminated the disease and in 1944 work was discontinued. A resurvey in most recently infected areas in Texas was deemed necessary to discover any residual infection. This work was undertaken with the State in autumn 1947. The following activities are being carried out under this survey:

(1) Citrus-growing nurseries are being inspected with extreme care.

(2) Previously infected properties are being re-examined.

(3) Escaped wild seedling trees in and near abandoned orchards are being inspected.

(4) Hedge plant citrus (Poncirus trifoliata) which is widely distributed and which is used for rootstock is being carefully reworked even at distant points from commercial areas, since experience has revealed dangerous infections in such places.

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

Item	Obligations 1947	Estimated obligations 1948	Estimated obligations 1949
Research and Marketing Act of 1946:			
Department of Agriculture (Bureau of Entomology and Plant Quarantine);			
(Title I, Sec. 10a): Utilization research	- -	$100,000	- -
(Title I, Sec. 10b): Research other than utilization research	- -	121,000	- -
(Title II): Marketing research and service	- -	35,000	- -
Total, Research and Marketing Act	- -	256,000	- - a/
Special Research Fund, Department of Agriculture (Bureau of Entomology and Plant Quarantine:			
Special entomological research dealing with the subjects "bee products in relation to health" and "investigations of the properties of bee disease organisms and bee products"	23,304	16,000	8,500
Control of Forest Pests, Department of Agriculture (Bureau of Entomology and Plant Quarantine):			
White Pine Blister Rust:			
Leadership, coordination, and technical direction of white pine blister rust control	720,837	679,900	679,900
Blister rust quarantine enforcement	12,995	13,450	13,450
Cooperative blister rust control on State and privately-owned lands	1,982,856	500,000	500,000
Total, White pine blister rust	2,716,688	1,193,350	1,193,350
Gypsy and brown-tail moths	593,527	603,600	603,600
Forest Pest Control Act	10,000	10,000	10,000
Dutch elm disease	316,631	101,800	101,800
Total, Control of Forest Pests	3,636,846	1,908,750	1,908,750

(Continued on next page)

Item	Obligations 1947	Estimated obligations 1948	Estimated obligations 1949
Working Funds, Agriculture, Bureau of Entomology and Plant Quarantine:			
Advances from:			
War Department:			
For the control of the dog fly along the Florida Gulf Coast	31,000	- -	- -
For investigations to determine practical methods of control for insects affecting forest products	12,964	17,036	- -
For continuation of development work on military entomological problems	94,393	66,107	- -
For investigations on insect control problems	224,962	250,038	- -
Navy Department:			
Formulations of new insecticides, biology, ecology and surveys of insects affecting man	11,915	19,148	- -
Commodity Credit Corporation:			
For the conduct of investigations of methods of properly caring for grain in storage	518	- -	- -
National Housing Agency:			
For making tests and continuing research on building materials and systems intended to facilitate the Veterans' Emergency Housing Program	8,700	6,300	- -
Forest Service:			
For White pine blister rust control	26,004	- -	- -
Total, Working Funds	410,456	358,629	- -
Miscellaneous Contributed Funds, Department of Agriculture (Bureau of Entomology and Plant Quarantine):			
Trust fund deposited by cooperators for cooperative work on blister rust control, barberry eradication, pepper weevil, seed crop insects, and cooperative experiments on DDT treated wallpapers	50,675	271,917	174,600

(Continued on next page)

Item	obligations 1947	Estimated obligations, 1948	Estimated obligations 1949
Penalty Mail Costs, Department of Agriculture (Allotment to Bureau of Entomology and Plant Quarantine): For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress.....	11,472	14,300	15,375
TOTAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS.....	4,132,753	2,825,596	2,107,225

a/ Allotments under this appropriation for the fiscal year 1949 have not been determined.

PASSENGER MOTOR VEHICLES AND AIRCRAFT

Passenger Vehicles

Salaries and Expenses: Prior to the fiscal year 1947, the Bureau of Entomology and Plant Quarantine had purchased only four passenger cars since 1943. It is proposed to purchase 62 in 1949, 55 of which will be replacements for vehicles which have been in use for a number of years and which in June 1947 had an average mileage in excess of 70,000 and by 1949 many will have reached the point where they can no longer be operated with safety.

The seven additional vehicles are for use as follows:

Four will be used on projects under Insect Investigations - 2 at Beltsville, Md., where the Division of Forest Insects is conducting extensive experiments on the application of insecticides from airplanes under conditions which require the transportation of personnel between the laboratory and airfield and other points where experiments are being conducted or observed; one at El Paso, Texas, in connection with research activities involving fumigation experiments along the Texas border and in nearby Mexico; and one in connection with work on insects affecting man and animals at Orlando, Florida.

Three will be used by Foreign Plant Quarantine officials engaged in coordinating post-entry quarantine activities under the Act of July 31, 1947, amending the Plant Quarantine Act of 1912.

Control of Emergency Outbreaks of Insects and Plant Diseases: Eighteen additional cars are required on this project. Ten of these will be used by supervisors of Grasshopper and Mormon Cricket Control work in an area covering 26 Western and Midwestern States. Many of the points to be visited by these employees do not have common carrier service and in many other cases the use of common carrier would be expensive and time consuming. The remaining 8 cars will be used by inspectors and scouts engaged in surveying conditions of insect infestation on Long Island and in the Southeastern States.

Airplanes

Salaries and Expenses: These estimates contemplate the purchase of 5 airplanes as follows:

(a) Two under Insect Investigations for work of an experimental and developmental nature in connection with the application of insecticides from the air.

(b) Three under Insect and Plant Disease Control to intensify federal-state cooperative efforts to eradicate or control insect infestations. In several cases the use of aircraft has been shown to be extremely effective.

Control of Emergency Outbreaks of Insects and Plant Diseases: The three planes which it is proposed to purchase for control of emergency outbreaks of insects and plant diseases will be used principally in connection with the control of grasshoppers and Mormon crickets and white-fringed beetles.

Turn-ins are not contemplated on any of these purchases. This is due primarily to the fact that as planes become unairworthy they are kept in reserve for use as a source of repair and replacement parts.

PENALTY MAIL ESTIMATE
Section 2, Public Law 364, 78th Congress
(Allotment to Bureau of Entomology and Plant Quarantine)

	1947	1948	1949	Increase (+) or decrease (-)
Category 1	$1,600	$1,700	$1,800	+ $100
Category 2	9,872	12,600	13,575	+ 975
Total	11,472	14,300	15,375	+ 1,075 (1)

(1) The increase of $1,075 is for the purpose of providing sufficient funds with which to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20.00 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

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Category 1 consists of leaflets, bulletins and other technical publications issued as a result of research work on entomology and mailed in answer to specific requests for information and for partial reply to inquiries regarding the programs of the Bureau.

Category 2 consists of general administrative correspondence between the field stations of the Bureau and Washington, and with State Departments of Agriculture, State colleges, and experiment stations cooperating with the bureau in the programs. There is also included correspondence in connection with requests for information on the identification of insects and for advice on control programs such as pink bollworm and Thurberia weevil, sweetpotato weevil, white pine blister rust control, grasshopper and Mormon cricket control, and many others.

BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY

Summary of Appropriations, 1948 and Estimates, 1949

ITEM	Appropriations, 1948	Budget Estimates 1949
Salaries and expenses:		
Agricultural Chemical Investigations	511,500	511,500
Naval Stores Investigations	152,550	152,550
Regional Research Laboratories	5,000,000	5,000,000
Total, direct annual appropriation	5,664,050	5,664,050

(a) Agricultural Chemical Investigations

Appropriation Act, 1948	$ 511,500
Budget Estimate, 1949	511,500
Change, 1949	- -

PROJECT STATEMENT

Project	1947	1948 (Estimated)	1949 (Estimated)
1. Fruits, vegetables and other agricultural products of the South	$ 113,196	$ 114,400	$ 114,400
2. Sugars and sirups investigations	89,008	93,800	93,800
3. Investigations in pharmacology of agricultural products	46,671	47,600	47,600
4. Investigation of enzyme action in agricultural products	74,569	75,700	75,700
5. Fruits, vegetables and other agricultural products of the West	66,433	71,600	71,600
6. Fundamental investigations in microbiology of agricultural products	43,143	45,100	45,100
7. Tung Nuts investigations	32,877	34,300	34,300
8. Basic investigations in the chemistry of agricultural products	27,962	29,000	29,000
Unobligated balance	4,774	- -	- -
	498,633	511,500	511,500
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act Costs)	-37,133	- -	- -
	$ 461,500	$ 511,500	$ 511,500

CHANGES IN LANGUAGE

The estimates propose to delete language at the end of this item, as follows (deleted matter enclosed with brackets):

> * * * [, and there shall be transferred to the Bureau of Agricultural and Industrial Chemistry, from Government surplus without compensation therefor, a certain parcel of real property of approximately one acre (consisting of lots 37 and 38 of Deal and Kreiser Subdivision, and lots 24 and 25 of tract 728 in the City of Pasadena, California), valued at approximately $15,800]

This change deletes the non-recurring provision in the 1948 Agricultural Appropriation Act authorizing the transfer, without compensation, of a parcel of land located in the City of Pasadena, California, from Government surplus. This land is to be used as a site for a laboratory for carrying out investigations on utilization of citrus fruits and other important commodities of the area.

ITEMIZATION OF ESTIMATES

Appropriation: Agricultural Chemical Investigations

Funds Available for Obligation

Item	Estimate 1948	Budget estimate, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$511,500	$511,500	- -
Total obligations	511,500	511,500	- -
Obligations by Objects			
Standard Classification			
01 Personal services	428,862	428,744	-118
02 Travel	13,600	13,300	-300
03 Transportation of things	1,470	1,270	-200
04 Communication services	2,580	2,760	+180
05 Rents and utility services	8,760	8,260	-500
07 Other contractual services	4,170	4,020	-150
08 Supplies and materials	26,980	28,670	+1,690
09 Equipment	25,078	24,476	-602
Grand total obligations	511,500	511,500	- -

STATUS OF PROGRAM

Current Activities: Work under this sub-appropriation is carried on in a number of field laboratories located as centrally as possible in production areas where an abundance of the fresh commodities on which investigations are being conducted are readily available in season. Scientific research is being directed to increase the outlet for farm products, thus giving the farmer a potential market for that part of his product not needed or suitable for the fresh produce market; to extend markets for citrus fruits through the development of new and improved products; to recover industrial products from sugarcane juice; to enhance farm income by preventing enzymic changes in farm produce that may be stored and may suffer quality deterioration with resulting loss of market value; to investigate the possible toxicity and pharmacological properties of products developed by the Bureau, and which have potential food, pharmaceutical and medicinal use; to determine contaminants that might be encountered in food products as a result of new processing procedures developed by the Bureau; to devise new methods of processing agricultural food products and uses for their byproducts and wastes; to study methods of production of tung oil and improved tung nut meal; to isolate and identify antibiotics from agricultural products, and their use in the control of fungus disease in plants and animals; to conduct basic investigations on the mode of action of organic plant growth regulators; to render technical assistance to farmers' cooperative processing organizations; to carry out fundamental investigations in the microbiology of agricultural products; and to assist in the development of crops for which domestic production is inadequate.

The following are selected as typical undertakings now in progress under this appropriation:

1. To determine substances responsible for flavor and appearance deterioration of canned citrus juices and other citrus products, studies are being conducted on citrus fruit constituents with a view to separating those which cause darkening, rancidity or other objectionable features when the juice is pasteurized, concentrated, frozen, or stored for long periods.

2. To effect citrus flavor essence recovery by improving the technique of recovering the volatile flavor essence of citrus juices, primarily orange and grapefruit juices.

3. Studies are being continued to determine conditions conducive to increased feed yeast production from citrus wastes on a commercial scale.

4. Research is being conducted to adapt a process developed by this Bureau for the separation of aconitic acid from molasses where the aconitic acid content is less than 3-1/2% of the total solids.

5. Investigations are in progress on the toxicity of defatted-depigmented cottonseed meal and the pigment gland. Results indicate that the toxic factor is in the pigment gland fraction, a fact which is significant in the development of nontoxic feed from cottonseed meal.

6. Cooperative studies are being conducted on the isolation and identification of grapefruit juice constituents in order to learn the effects of these constituents on the processing and storage of canned juice and the part they play in the deterioration of such juice.

Selected examples of recent progress. Among recent accomplishments under this appropriation item are the following:

1. From the operation of a large pilot plant, data were obtained on the conditions affecting yields of feed yeasts from citrus wastes, and economy of the process. In the experiments on continuous yeast production, it was established that the process would fit in the production line, that the yeast remained viable and essentially uncontaminated throughout the operating season, and that ammonium sulfate could be used as a cheaper and better source of nitrogen than ammonium chloride. It was also developed that by diluting the waste with water, increased yields were obtained.

2. At the Raleigh, N. C. Station, over 300 cultures of yeast obtained from commercial cucumber fermentations have been isolated and classified with a view to devising means for decreasing losses in cucumber pickling by preventing excessive formation of gas and resultant bloaters in commercial operations.

3. Calcium aconitate, the byproduct from sugarcane juice which provides aconitic acid for use in plastics and rubber products, was recovered on a full commercial scale throughout the recent grinding season at the largest mill in Louisiana.

4. Investigations in the pharmacology of agricultural products included the completion and publication of experiments on the acute and chronic toxicity of rutin, to determine the safety of using rutin for clinical purposes over long periods of time; studies of the absorption and foreign-body reactions of formaldehyde-treated starch in the peritoneal cavity of experimental animals to aid in the development of a nonirritating starch of good powdering characteristics to replace the talc used in powdering surgical gloves; and the completion of studies for the Bureau of Plant Industry, Soils and Agricultural Engineering on the chronic toxicity of the compounds thiourea, thioacetamide and 8-hydroxyquinoline sulfate used for the prevention of stem-end rot of oranges. From these results the possible health hazard of residues of these compounds on oranges can be evaluated.

5. Plant enzymes capable of converting starch to sugar—one phase in the ripening of fruits—have been isolated and studied with considerable success. One of the starch-converting enzymes recently extracted from sweetpotato juice promises to have industrial uses where starch removal is desirable, as in jelly making and desizing cotton goods preparatory to dyeing or printing.

6. Use of ethylene for reducing self-heating of under-ripe grains in storage has been successful on a commercial scale with rice in the Texas area. The value of grain lost by self-heating is enormous, and the possible use of the ethylene treatment for treating under-ripe grains apparently provides a means for greatly reducing such losses.

7. Studies have been made on the keeping qualities of fresh, unpasteurized, chilled orange juice. Such juice will keep well for seven days or longer with no loss of ascorbic acid when good quality fruit is used, the juice thoroughly deaerated, filled into containers with no head-space, and kept at a temperature of 32° to 38° F.

8. Canned grapefruit sections have not been a successful product in Arizona and California because the fruit is too tender to stand processing. It has been found that this difficulty can be overcome by the use of small amounts of calcium chloride, similar to the process now being used for firming canned tomatoes.

9. Improvements in the color of canned freestone peaches in Washington and the possibility of reducing the cost of canning and freezing such peaches have been demonstrated.

10. A two-year study on canning and freezing of Idaho-grown vegetables was completed in cooperation with the Idaho Agricultural Experiment Station. These studies demonstrate that peas grown in the Palouse area are suitable for canning and freezing over a limited-season basis. It has been demonstrated that sweet corn produced in the Lewiston area is also suitable for canning and freezing.

11. Methods for producing Grade A, canned whole-pack tomatoes from tomatoes grown under irrigation in the Lewiston, Idaho, area have been developed. Formerly these tomatoes were not considered suitable for producing such a high-quality pack.

(b) Naval Stores Investigations

Appropriation Act, 1948	$152,550
Budget Estimate, 1949	152,550
Change, 1949	- -

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
1. Naval Stores Investigations:			
(a) Investigations of naval stores production, processes, and equipment	$56,417	$53,300	$53,300
(b) Invesigations of composition, properties, components, and derivatives of naval stores	44,283	48,300	48,300
(c) Investigations of uses, handling, and transportation of naval stores	46,807	50,950	50,950
Unobligated balance	2,732	- -	- -
Total available	150,239	152,550	152,550
Transferred to "Salaries and expenses, Bureau of Agricultural Economics," crop and livestock	+3,450	- -	- -
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act Costs)	-13,689	- -	- -
Total appropriation or estimate	140,000	152,550	152,550

ITEMIZATION OF ESTIMATES

Appropriation: Naval Stores Investigations

Funds Available for Obligation

Item	Estimate, 1948	Budget estimate, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$152,550	$152,550	- -
Total obligations	152,550	152,550	- -
Obligations by Objects			
Standard Classification			
01 Personal services	$132,642	$132,642	- -
02 Travel	3,800	3,800	- -
03 Transportation of things	600	1,200	+600
04 Communication services	1,000	1,500	+500
05 Rents and utility services	1,050	1,050	- -
07 Other contractual services	1,000	1,000	- -
08 Supplies and materials	6,000	6,000	- -
09 Equipment	6,458	5,358	-1,100
Grand total obligations	152,550	152,550	- -

STATUS OF PROGRAM

Current Activities: Research efforts under this subappropriation involve the development of new and improved methods and the designing and testing of new equipment for the processing of pine oleoresin (pine tree gum) in order to make available oleoresin, turpentine and rosins that will meet the increasingly more critical chemical and physical requirements of the consuming industries; investigations of turpentine and rosins for the purpose of developing new and improved analytical procedures, studying the chemistry of oleoresin constituents, and developing methods of economically isolating desired individual constituents; producing new and useful derivatives of the oleoresin constituent and of the turpentine and rosin constituents, and developing methods of handling, packaging, and storing naval stores which will minimize deterioration.

Certain of the research and technical work being conducted consists of the following:

1. To develop more efficient methods of processing pine oleoresin, and for the production of new chemical derivatives in order to stabilize and expand the markets for naval stores products.

2. To design a still column of possibly 12" in connection with the continuous flash-distillation process to insure greater and more economical output than that of the present batch steam still.

3. The testing of various commercial materials such as plastics, metals, alloys, and coated surfaces for use in turpentine cups, aprons, and gutters to be used for collecting gum produced from pine trees stimulated with acid.

Some examples of recent progress:

1. A process developed has enabled the production of a clean brilliant rosin from gum collected in old rusty cups which producers and gum farmers have had to use due to scarcity of new metals for turpentine cups.

2. The study of the preparation of synthetic rubber-like materials from isoprene (a turpentine derivative) was concluded. In this work, a number of high-quality synthetic rubbers were obtained in good yield.

3. The use of a recently discovered reaction for combining halogenated organic compounds with terpenes has yielded compounds imparting water-repellent properties to fabrics, ceramics, etc.

4. A method was developed for the preparation of water-resistant varnishes from linseed oil and the maleic anhydride addition product of levo-pimaric acid, which is obtained from pine gum. Oven-baked films of these varnishes are apparently unaffected by immersion in boiling water for as long as 24 hours.

(c) Regional Research Laboratories

Appropriation Act, 1948	$ 5,000,000
Budget estimate, 1949	5,000,000
Change, 1949	- -

PROJECT STATEMENT

Projects	1947	1948 (Estimated)	1949 (Estimated)
1. Southern Regional Research Laboratory	$1,181,530	$1,204,800	$1,204,800
2. Western Regional Research Laboratory	1,148,337	1,210,000	1,210,000
3. Eastern Regional Research Laboratory	1,171,574	1,210,100	1,210,100
4. Northern Regional Research Laboratory	1,161,788	1,212,500	1,212,500
5. General Administration	138,288	162,600	162,600
Unobligated balance	41,157	- -	- -
Total available	4,842,674	5,000,000	5,000,000
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture (for Pay Act Costs)	-392,674	- -	- -
Total appropriation or estimate	4,450,000	5,000,000	5,000,000

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item, as follows (new language underscored, deleted matter enclosed with brackets):

> Regional Research Laboratories: For continuing the researches established under the provisions of section 202(a) to 202(e), inclusive, of title II of the Agricultural Adjustment Act of 1938 (7 U.S.C. 1292), including research on food products of farm commodities, $5,000,000, including not to exceed [$30,000] $50,000 for the construction of a [commodity and equipment storage] hazardous operations building at the [Western] Eastern Regional Research Laboratory located at [Albany, California] Wyndmoor, Pennsylvania.

The changes propose deletion of the nonrecurring provision in the 1948 Agricultural Appropriation Act authorizing construction of a commodity and equipment storage building at the Western Regional Research Laboratory, located at Albany, California, and authorizes the construction of a hazardous operations building at the Eastern Regional Research Laboratory, located at Wyndmoor, Pennsylvania, at a cost of not

to exceed $50,000. This building is required to house certain operations such as solvent extractions and high pressure reactions which by their nature are dangerous since they involve either fire or explosion hazard. Since no separate building is available, these hazardous operations are now conducted in the laboratory and pilot-plant wings. In addition to the hazard to employees, by reason of such operations, the hazard to the valuable laboratory building and equipment is great. Prudence dictates that such operations be conducted in a structure especially designed to minimize fire and explosion hazards.

ITEMIZATION OF ESTIMATES

Appropriation: Regional Research Laboratories

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimate, 1949	Increase (+) or decrease (-)
Appropriation or estimate	$5,000,000	$5,000,000	- -
Total obligations	5,000,000	5,000,000	- -
Obligations by Objects			
Standard Classification			
01 Personal services	4,015,210	4,049,538	+34,328
02 Travel	80,500	78,500	-2,000
03 Transportation of things	19,300	20,800	+1,500
04 Communication services	22,828	25,000	+2,172
05 Rents and utility services ..	110,500	111,500	+1,000
07 Other contractual services ..	97,100	87,600	-9,500
08 Supplies and materials	336,892	327,392	-9,500
09 Equipment	267,670	226,670	-41,000
10 Lands and structures	50,000	73,000	+23,000
Grand total obligations ..	5,000,000	5,000,000	- -

STATUS OF PROGRAM

Current Activities: Research work under this sub-appropriation is being conducted at four regional research laboratories to develop new scientific, chemical, and technological uses, and hence new and extended markets for farm commodities, and their products and byproducts, especially for those agricultural products of which there are recurring surpluses. The investigations involve the development of improved industrial techniques, and devising of new procedures that will make possible the production of new or better materials for which there are present or potential demands, and to make commercial evaluations of technological research with the object of stimulating the expansion of old industries or the development of new ones by showing the possibilities of increasing income to the farmer as a result of the processing of agricultural crops, their derived products and byproducts.

Southern Regional Research Laboratory

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
1. Cotton utilization investigations	942,806	963,900	963,900
2. Sweetpotato utilization investigations	169,098	120,400	120,400
3. Peanut and other oilseed crops utilization investigations	69,626	120,500	120,500
Unobligated balance	4,112	-	-
Total available	1,185,642	1,204,800	1,204,800
Supplemental funds	- 109,777	-	-
Total appropriation or estimate	1,075,865	1,204,800	1,204,800

Selected activities now in process:

1. To provide wind-and-rain resistant cotton fabrics much study has been devoted to the selection of types of cotton suitable for the manufacture of fabrics which are self-sealing against water penetration, and investigations are proceeding along the line of adapting more satisfactorily the essential finishing operations to the requirements of self-sealing type fabrics.

2. To distinguish between thin-walled cotton and full-bodied normal cotton a dye method for selecting cottons has been utilized. Steps are being taken to develop this technique on a quantitative basis.

3. To open up matted lumps or tufts of baled cotton to a loose and fluffy state and permit better cleaning of lint cotton, a new type of mechanical cotton opener is being constructed. The machine is intended to meet the problem of removing the increased amount of extraneous matter that is gathered in mechanical harvesting of cotton.

4. Mechanical processing studies on selected cottons are being conducted to determine which arrangements of opening and cleaning, which speed of beater and fans, and which settings give maximum cleaning without material damage to the cotton fiber when standard textile machinery is used.

5. To prevent damage during storage of moist cottonseed investigations are being continued on the development of a chemical treatment which would inhibit the biological systems in the seed that are responsible for heating and damage to quality.

6. Additional studies in connection with the cottonseed deglanding process on the composition and properties of the pigment gland with the object of developing industrial and pharmaceutical uses.

7. Investigations relating to industrial utilization of oil and meals include work on the preparation of monoglycerides from oils with the object of developing a practical process for obtaining products of 80-90 percent monoglyceride. Such products are useful as intermediates in the preparation of "tailor-made" fats.

8. To improve the keeping quality of peanut oil, research has continued on the stabilizing action of norconidendrin, a chemical prepared from the sulfite waste liquors of western hemlock, and on the effect of adsorbents, and the correlation of keeping quality of a hydrogenated peanut oil with its fatty acid composition.

Typical examples of recent accomplishments are:

1. Investigations made for the purpose of improving methods of protectively treating cotton fabrics have resulted in the establishment of standards for determining the effectiveness of different protective finishes.

2. As a result of pilot-plant research on the partial acetylation of cotton goods for protection against rot and mildew, one industrial concern has started commercial production of partially acetylated cotton bags for use in domestic water-softening systems, and cord and rope acetylated at the Southern Laboratory have been manufactured by an industrial firm into gill nets which are now being tested by commercial fishermen in the Great Lakes.

3. The development of an improved stretching device for cotton tire cord, which can be attached to existing commercial winding machinery and operated at a high production rate, has demonstrated that it produces a much more uniform cord with respect to elongation and strength than that stretched on other types of commercial stretchers.

4. Good dyeing of cotton with acid dyes, not ordinarily possible, was readily accomplished by the introduction of amino groups into the cellulose of the fiber. Two improved methods have been developed for introducing the aminoethyl group.

5. The control of color in oils and meals, an important factor in processing cottonseed, has been made possible. In laboratory-scale investigations the distribution of color in the oil and meal obtained by solvent extraction has been established, and methods have been proposed for the removal of the color.

6. In sweetpotato utilization investigations some simplification of the starch manufacturing process which has application in small-scale commercial development has been obtained. A small, compact plant of low overhead and labor costs could be operated in a small community by a group of cooperative sweetpotato growers to better advantage than the plants which have operated so far.

7. The fiber developed from peanut protein has been improved in strength and in elongation properties by certain modification of the methods used to produce and spin the fiber based upon fundamental investigations in properties of the protein. A treatment has been found for improving the viscosity characteristics of peanut protein solutions prepared for use in the production of fiber.

8. Some problems relating to the solvent extraction of peanuts have been solved. The problem arising from the objectionable color in the peanut skins has been met by the development of a blanching process, and a means has been found to make peanut flakes more stable during extraction. This process development research is of immediate practical importance because of the growing industrial demand for solvent-extracted peanut meal.

Western Regional Research Laboratory

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
1. Alfalfa utilization investigations	33,533	37,320	49,320
2. Fruit, including apple utilization investigations[a/]	352,540	442,800	436,800
3. Poultry utilization investigations	269,897	206,930	206,930
4. Vegetable, including potato utilization investigations[a/]	412,845	435,300	429,300
5. Wheat utilization investigations[b/]	79,522	87,650	87,650
Unobligated balance	16,448	-	-
Total available	1,164,785	1,210,000	1,210,000
Supplemental funds	- 83,720	-	-
Total appropriation or estimate	1,081,065	1,210,000	1,210,000

a/ Joint project with Eastern Regional Research Laboratory.
b/ Joint project with Northern Regional Research Laboratory.

Selected activities now in process:

1. Alfalfa utilization investigations to develop methods of retarding losses in quality through a study of the character of the fatty constituents, and the development of industrial methods for the recovery of pro-vitamin A (carotene) vitamin E, chlorophyll, high-quality protein, and other commercially valuable components.

2. Semi-pilot plant production of gluten sulfate from wheat has been undertaken to supply samples to industries which have indicated an active interest in this material.

3. The application of the "dehydrofreezing" process, which has been successfully applied to apples, is being extended to other fruits.

4. Modified pectins derived from fruits are being investigated as edible protective coatings for a variety of food products, such as cheese, dried fruits, and frozen fish fillets.

5. Development of more satisfactory methods for solubilizing feathers, preliminary to their use for synthetic fibers, adhesives, or as a component of feeds.

6. To extend consumer acceptance of dehydrated potatoes through improvement of quality, research is being conducted on potato composition to aid in the selection and conditioning of potatoes for dehydration.

7. To avoid the development of undesirable flavors in frozen peas, a careful study of the entire freezing process for this commodity is under way.

Typical examples of recent progress are:

1. An important improvement in the scalding of fruit to retain flavor, vitamins and color in the commercial freezing process.

2. A pilot-plant study conducted in a commercial citrus processing plant yielded the information regarding the kind of equipment required to apply the new process for the production of low-methoxyl pectin.

3. A process for extracting ascorbic acid from walnut hulls with simple continuous equipment operated at one of the walnut hulling plants has been tried out successfully. Walnut hulls, available to the extent of about 25,000 tons per year, have been found to contain approximately 125,000 lbs. of recoverable ascorbic acid, which, at current market prices, would have a value of approximately $1,500,000.

4. The three to four fold increase of storage life of acidified dehydrated eggs has been confirmed by long term storage tests, and as a result the Office of the Quartermaster General has contracted with commercial egg dehydrators for substantial quantities of this product to conduct practical use trials.

5. Experiments indicate that frozen vegetables can be safely packed in hermetically sealed containers without danger that botulinum toxin might develop.

6. The development of procedures for the larger scale production from vegetable waste of the antibiotic subtilin has made possible the distribution of significant quantities for limited testing against animal diseases and for clinical evaluation.

7. A process has been developed for extracting wheat humin waste, a byproduct in the manufacture of monosodium glutamate, to yield fatty acids of commercial value.

8. It has been demonstrated that wheat gluten proteins can bind fats during kneading even in greater amount than the fat originally present in the flour. This is of importance in the technology of baking.

Eastern Regional Research Laboratory

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
1. Apple and other fruit utilization investigations[a]	127,883	135,600	135,600
2. Vegetable utilization investigations[a]	89,181	90,900	90,900
3. Tobacco utilization investigations	213,678	213,100	213,100
4. Milk products utilization investigations	313,024	326,200	326,200
5. Animal fats and oils utilization investigations	253,924	256,500	256,500
6. Potato utilization investigations[a]	95,725	100,600	100,600
7. Tanning materials, hides, skins and leather investigations	78,159	87,200	87,200
Unobligated balance	13,691	-	-
Total available	1,185,265	1,210,100	1,210,100
Supplemental funds	- 113,000	-	-
Total appropriation or estimate	1,072,265	1,210,100	1,210,100

[a] Joint project with Western Regional Research Laboratory.

Among the activities now in process are the following:

1. Extension of the Bureau method for production of essence from cull apples to production of a satisfactory essence from parings and cores.

2. Experiments are now in progress to learn the mechanism by which the firmness of tissue of apples of various stages of maturity, conditions of storage, and methods of cooking is effected by the addition of calcium salts or other reagents.

3. To increase the tensile strength and water resistance of casein textile fiber.

4. Lactic acid derivatives obtained from milk are being developed as plasticizers for use with vinyl resins and cellulose acetate type derivatives.

5. New derivatives of animal fats are being developed as potential intermediates in the production of plastics and plasticizers and for lubricant modifiers to prevent corrosion and fouling of internal combusion engines in farm tractors and naval vessels.

6. A pilot-plant unit for production of potato starch is being assembled to make a step-wise study of potato starch manufacture with particular attention to existing or latent problems which were uncovered in an engineering survey of commercial potato starch plants.

7. Studies are being made on a number of promising domestic tannin sources to develop adequate supplies of high quality, moderately priced tanning materials.

The following are selected from recent accomplishments:

1. A process developed for introducing tomato pectase to firm the slices of certain varieties of apples normally too soft to meet the requirements of commercial bakeries.

2. In cooperation with the Pennsylvania Agriculture Experiment Station and the Bureau of Plant Industry, Soils & Agricultural Engineering, determination of the influence of fertilizers and variety on the rutin content of the buckwheat plant.

3. In attempts to increase the insecticidal activity of nicotine through the use of activators, one compound, phthalonitrile, has been found to have a definite increased toxicity against such insects as the army worm, pea aphid, and California oak worm.

4. A completely continuous method for making casein bristle of greater uniformity and flexibility and with equal or better tensile strength than that made by the batch method.

5. Determination of the relationship of the degree of hydrogenation of the unsaturated fat acids in lard to the tendency of the lard to become rancid.

6. The development of a low-cost procedure which greatly reduces explosion and fire hazard for dehydrating potatoes to permit utilization for livestock feed or industrial use.

7. Demonstration that American sumacs can be successfully used to replace imported Sicilian sumac for tanning leathers.

Northern Regional Research Laboratory

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
1. Agricultural residues utilization investigations	267,130	278,900	278,900
2. Corn, wheat, and other cereal crops utilization investigations a/	628,016	654,700	654,700
3. Soybeans and other oilseed crop utilization investigations	266,642	278,900	278,900
Unobligated balance	5,577	-	-
Total available	1,167,365	1,212,500	1,212,500
Supplemental funds	- 84,000	-	-
Total appropriation or estimate	1,083,365	1,212,500	1,212,500

a/ Joint project with Western Regional Research Laboratory.

Selected activities now in process:

1. To augment the low-grade veneer used by the wire-bound box industry, investigations are being conducted in an endeavor to develop a suitable product from wheat straw.

2. Development of outlets for the xylose resulting from the saccharification of agricultural residues by (a) conversion to furfural useful in the synthesis of synthetic plastics and plasticizers, and (b) production of crystalline xylose to be marketed as such or in the form of chemical derivatives.

3. Investigations using corn steep liquor are being conducted toward the production and isolation of new antibiotic agents, effective primarily against bacteria belonging to the genera Brucella and Mycobacterium.

4. Because grain sorghum is becoming an important crop throughout the Dust Bowl area and has attractive possibilities as a raw material for industrial purposes, extensive investigations are being completed on the development of wet milling process for the production of starch.

5. To effect the separation of soybean oil into two fractions, each of which is superior to the original oil for certain specific uses, a process is in development to accomplish separation on a commercial scale.

Typical examples of recent progress:

1. A process using present manufacturing methods and machinery has been developed to produce from wheat straw a wide range of high quality, rugged, insulating building board products.

2. Analyses of commercial hybrid corn varieties has shown that a definite relationship exists between the oil content and the parentage of corn, which points the way to an enormous simplification in plant breeding investigations directed to the production of high oil content corn hybrids.

3. A new technique was developed to follow the softening which occurs during the steeping of corn (a step in the wet milling process) for the separation of the starch, germ and protein fractions. Application of the technique has greatly facilitated studies of all conditions affecting the steeping process.

4. Cooperative investigations have demonstrated that there is no appreciable loss in the oil content of soybeans held in regular commercial storage. These conclusive results have refuted previously held views of the processing industry, and should result in greater returns to the farmer who markets his soybeans on an oil content basis.

5. Continued studies on the employment of soybean oil in paint formulation have resulted in compositions of satisfactory durability and drying rate which are especially applicable to outdoor structures such as farm buildings. One such formulation now on the market consists of a pigment paste to which the farmer need only add soybean oil to obtain a useful paint at low cost.

General Administrative Expenses

PROJECT STATEMENT

Project	1947	1948 (estimated)	1949 (estimated)
1. General administration	138,288	162,600	162,600
Unobligated balance	6,678	-	-
Total available	144,966	162,600	162,600
Supplemental funds	- 7,526	-	-
Total appropriation or estimate	137,440	162,600	162,600

The general administrative staff has supervised and directed the work of the four Regional Research Laboratories, and has maintained centralized control and direction of the business activities necessary for the proper functioning of the organization as a whole.

Conferences have been held with the Directors of the laboratories with reference to the research program, and meetings of the Agricultural Experiment Station Relations Committee have been held at each Laboratory for the purpose of planning such programs. Necessary contacts have been maintained with the Office of Agricultural Research Administrator and other agencies.

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Research and Marketing Act of 1946; (Allotment to Bureau of Agricultural and Industrial Chemistry): (Title I, section 10a) Utilization research	- -	1,883,900	a/
Special Research Fund, Department of Agriculture, (Bureau of Agricultural and Industrial Chemistry): Special agricultural chemical researches of a fundamental nature	73,882	66,100	66,100
Research on Strategic and Critical Agricultural Materials, (Bureau of Agricultural and Industrial Chemistry): Investigations of improved methods for extraction and processing of rubber from guayule and other rubber plants	- -	179,000	179,000
Synthetic Liquid Fuels, Transfer to Agriculture, (Bureau of Agricultural and Industrial Chemistry): Operation of semi-works plant for studies of production of liquid motor fuels from agricultural products. (Transfer from Interior Department)	69,194	86,754	78,000
Miscellaneous Contributed Funds, Department of Agriculture (Allotment to Bureau of Agricultural and Industrial Chemistry): Cooperative research on grapefruit in Arizona and California and freezing preservation of food products	2,446	2,000	2,000

a/ Allotments under this appropriation for the fiscal year 1949 have not been determined.

(Continued on next page)

Item	Obligations, 1947	Estimated obligations, 1948	Estimated obligations, 1949
Penalty Mail Costs, Department of Agriculture, (Allotment to Bureau of Agricultural and Industrial Chemistry): For cost of penalty mail pursuant to Section 2, Public Law 364, 78th Congress	2,207	3,700	3,980
TOTAL OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	147,729	2,221,454	329,080

PASSENGER MOTOR VEHICLES

The total estimate of $2,000 for the purchase of passenger-motor vehicles will permit the purchase of two cars as shown below, both being replacements of passenger-motor vehicles now in the possession of the Bureau.

One replacement will be made at the U.S. Citrus Products Station, Winter Haven, Florida. The car to be turned in is a 1939 model which will have approximate mileage of 65,000 miles when traded in.

One replacement will be made at the Western Regional Research Laboratory, Albany, California. The car to be turned in is a 1939 model, which will have approximate mileage of 63,000 miles when traded in.

The old vehicles to be replaced have reached a mechanical condition where frequent breakdown may be expected, which is particularly unsatisfactory considering the services they must perform, which is to transport laboratory officials, collaborators, and official visitors in connection with the research work of the Bureau on short inspection trips, etc., to nearby points and to remote sections of the country over all types of roads.

PENALTY MAIL ESTIMATE

Sec. 2 - Public Law 364, 78th Congress
(Allotment to Bureau of Agricultural and Industrial Chemistry)

	1947	1948	1949	Increase (+) or decrease (-) 1949 over 1948
Category 1	$ 162	$ 500	$ 520	+$ 20
Category 2	2,045	3,200	3,460	+260
Total	2,207	3,700	3,980	+280 (1)/

(1) The increase of $280 for 1949 is for the purpose of providing sufficient funds with which to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20.00 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailing.

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Category 1 - Consists of the mailing of technical publications of the Bureau furnished in response to specific requests for information relating to its research work.

Category 2 - Consists of operational and administrative mailings between the Bureau and its field offices and other agencies in the Department and to private concerns and individuals.

BUREAU OF HUMAN NUTRITION AND HOME ECONOMICS

Appropriation Act, 1948	$800,000
Budget estimate, 1949	813,000
Increase, 1949 (For within-grade salary advancements)	+13,000

PROJECT STATEMENT

Project	1947	1948 (Estimated)	1949 (Estimated)	Increase or decrease
1. Food and nutrition investigations	$331,000	$255,000	$259,000	+$4,000
2. Family economics investigations	309,000	250,000	254,000	+4,000
3. Textiles and clothing investigations	164,321	140,000	142,000	+2,000
4. Housing and household equipment investigations	123,000	95,000	97,000	+2,000
5. Home economics information	60,263	60,000	61,000	+1,000
Unobligated balance	8,679	- -	- -	- -
Total available	996,263	800,000	813,000	+13,000(1)
Transferred to "Salaries and expenses, Office of Information, Department of Agriculture"	+737	- -	- -	
Transferred from "Exportation and domestic consumption of agricultural commodities, Department of Agriculture" (for Pay Act Costs)	-80,000	- -	- -	
Total estimate or appropriation	917,000	800,000	813,000	

INCREASE

(1) Increase of $13,000 to cover the cost of within-grade salary advancements in fiscal year 1949.

The Mead-Ramspect Act, as amended by the Federal Employees Pay Act of 1945, provides that employees compensated on a per annum basis and occupying permanent positions, and who have not attained the maximum rate of compensation for the grade in which their positions were allocated, should receive an advance in compensation to the next higher rate within the grade after each 12 months of service for employees in grades below CAF-11 (and comparable grades in other services), and after each 18 months of service for employees in grades CAF-11 and above (and comparable grades in other services).

The increase of $13,000 is to cover, in part, the additional cost of these within-grade salary advancements in the fiscal year 1949. This figure was determined only after careful consideration of the costs of within-grade salary advancements that can be absorbed. Further absorption of the within-grade salary costs would necessitate curtailment of the current research program of the Bureau. The need for these additional funds is especially urgent in view of increased costs of supplies, equipment, and other operating expenses being absorbed within the current appropriation which represents a reduction of 20 percent from the amount appropriated for fiscal year 1947.

ITEMIZATION OF ESTIMATES

Appropriation: Salaries and expenses, Bureau of Human Nutrition and Home Economics

Funds Available for Obligation

Item	Estimate, 1948	Budget Estimates, 1949	Increase(+) or decrease(-)
Appropriation or estimate	$800,000	$813,000	+$13,000
Reimbursements for services performed.	652	- -	-652
Total obligations (inclusive of reimbursement)	800,652	813,000	+12,348

Obligations by Objects

Standard Classification			
01 Personal services	$683,652	$696,000	+$12,348
02 Travel	6,800	6,800	- -
03 Transportation of things	400	400	- -
04 Communication services	5,000	5,000	- -
05 Rents and utility services	6,000	6,000	- -
07 Other contractual services	75,000	75,000	- -
08 Supplies and materials	15,000	15,000	- -
09 Equipment	8,800	8,800	- -
Grand total obligations	800,652	813,000	+12,348
Reimbursements for services performed.	-652	- -	+652
Total available (exclusive of reimbursements)	800,000	813,000	+13,000

STATUS OF PROGRAM

Current Activities: The Bureau of Human Nutrition and Home Economics is authorized to undertake studies "....of the relative utility and economy of agricultural products for food, clothing and other uses in the home.....and such economic investigations, including housing and household buying, as have for their purpose the improvement of the rural home...." and to disseminate useful information on these subjects. This research is done through laboratory and field studies in cooperation, wherever feasible, with other bureaus of the Department, other Federal agencies, and with State research agencies, particularly agricultural experiment stations. Included in the Bureau's researches are studies to determine:

1. The nutritive contributions of different foods to the diet, the comparative cost of foods, the food and nutritional requirements of people and how these facts can be applied by families in different circumstances to the buying of food, the preparation of healthful meals, and the preservation and care of food in the home. Such knowledge can also be applied in planning the food required by the Nation and in evaluating the adequacy of food supplies.

2. The relative usefulness and cost of fabrics and garments differing in material, construction, design and finish, for the purpose of developing specifications for products that better meet consumer needs, and of assisting consumers in their selection and care of fabrics, garments, and household textiles for various uses.

3. The housing needs of families for efficiency and comfort. This information is used in the development of plans for functional rural houses and for work and storage centers to meet family requirements.

4. Facts basic to assisting families with the selection, care, and use of household equipment.

5. The quantities of different foods and other goods and services consumed by families in various regional and economic groups; the factors such as income, prices, and family size that affect consumption; and an evaluation of the adequacy of the food consumed. These studies indicate the potential market in household utilization of agricultural products. They help to clarify many of the management problems that families face, to point up issues for educators and other public leaders concerned with improving living and to provide material for educational and administrative programs.

The economic importance of homemaking and of research for its improvement is indicated by the fact that in 1940 there were about 225 women giving full-time to homemaking for every 100 women and 300 men in the paid labor force. This large number of women engaged in homemaking as full-time occupation and the wide variety of their tasks and responsibilities -- 70 percent of the Nation's economic budget is said

to represent consumer buying, with most of this in the hands of women -- emphasizes the need for giving women the benefit of research directed to their problems.

Following are examples of accomplishments during the past year:

Nutritive Values of Food

Ratings of 72 fresh fruits and vegetables as sources of vitamins and minerals have been published as well as a table giving the calorie values of common servings of more than 100 foods prepared for eating. New data have been provided on the protein, fat, carbohydrate, refuse, moisture, 3 minerals and 5 vitamins of 34 food items as brought into the kitchen and for 26 cooked or prepared foods.

Amino acid content of foods: Information on the quantitative distribution of four nutritionally important amino acids in about 30 foods and proteins was obtained following the development of new methods for their determination.

Nutritive value of proteins: It has been found that

(1) Of five important food grains investigated, rolled oats is equal or superior to others in protein content and quality. Rice, though the lowest in protein content, ranks with oats as the highest in protein quality. Higher nutritional value was found for protein of rye than for that of either hard or soft wheat. The latter are about equal in nutritional value of protein.

(2) The amino acid composition of the proteins of egg white is not constant, but is affected by the feed of the hen.

(3) Lanthionine, a sulfur-containing amino acid discovered by Bureau scientists a few years ago, is capable in one of its two forms, of replacing cystine and methionine in the diet of experimental animals.

(4) A newly processed, solvent-extracted, unheated gossypol-free cottonseed flour (prepared in the Southern Regional Research Laboratory) has much higher nutritive protein value than that previously found in a commercial cottonseed flour. Contrary to recent reports that cottonseed protein is deficient in the nutritionally essential amino acid, lysine, these studies showed that the sample investigated contained an adequate amount of this amino acid.

Availability of carotene from vegetables: Although carotene is a precursor of vitamin A, a chemical analysis for carotene in a vegetable may be misleading as to its actual vitamin A value to the body. Only about 60 percent of the carotene in cooked kale, and 25 percent of that in cooked carrots was found to be utilized by the rat fed a diet deficient in vitamin A but otherwise adequate, whereas 90 percent of the carotene extracted from these vegetables was utilized. This suggests that there may be incomplete liberation of the carotene from

the vegetable matrix in the digestive tract. Previous Bureau studies with human subjects have shown that the availability of carotene varies from vegetable to vegetable. The human, like the rat used the carotene from carrots less efficiently than from peas and spinach.

Energy value of food: Lack of comparability in food composition figures from one country to another presents a problem whenever international inquiries must be made into food consumption or food supplies. The method developed in this country for calculating the physiological energy value of our diet as a whole cannot be correctly applied to individual foods, or to diets which differ greatly from those in general use in this country, either in kind or proportion of foods. The Bureau has prepared a report explaining the changes needed in calculating the values of individual foods and has developed new calorie values for wheat flours of three levels of extraction and tentative figures for a few other cereals, potatoes, and some other groups of food. The need for further experimental work is such that cooperative research is being undertaken with the Iowa Agricultural Experiment Station and the State University of Iowa.

Supplementary relationships among foods: Studies exploring the effect on nutrition of adding different kinds of food to diets high in bread and containing only small amounts of root and leafy vegetables, meat, and fat showed dry skim milk to be outstanding in improving growth and bone development. Further investigation showed casein and calcium to be chiefly responsible for the improvement. Adding casein to bring protein to the level provided by the milk resulted in a 4- to 5-fold increase in growth over the basal diet alone. Although neither calcium nor riboflavin alone, or in combination, fed in amounts equivalent to those provided by milk had any significant effect on growth, calcium combined with casein resulted in a growth rate nearly 8 times that obtained with the unsupplemented diets. Further supplementation with riboflavin had no effect. The addition of inorganic calcium alone to the basal diet resulted in normal bone development as did an equivalent amount of calcium from a vegetable source (kale).

Home Food Preservation

Equipment for home canning: Research undertaken to learn the effect of wartime innovations in material, design, and size of steam pressure canners on the sterilizing values for foods in glass jars showed that while these factors do affect the operating characteristics of the canners somewhat, only small differences in the sterilizing values were obtained when the various canners were used to process specific foods. It was concluded that the processing times now recommended by the Bureau will be safe when used with any of the canners studied.

To answer the many inquiries concerning the use of pressure saucepans for cooking and for canning small quantities of food, studies have been initiated to determine their operating characteristics. Since cooking and canning times are based on temperature, the temperature within the pan was measured during heating, venting, cooking, process-

and for an apron developed during the fiscal year 1947. This research, begun in 1940, made it possible to release work clothing designs to ready-to-wear manufacturers and pattern companies early in the war. Within a few months after the designs were made public, between 75 and 100 companies were putting on the market garments following or adapted from the Federal designs. In addition, through the cooperation of pattern manufacturers, the first 17 of the Bureau's designs soon became available in commercial patterns. The research is credited with starting and setting a standard for a new, large branch of the work clothes industry. Loan exhibits of many of the functional work clothes designed and made by the Bureau were used during the fiscal year 1947 by 48 states, but the number of exhibits available could take care of only half of the requests received.

Farm Housing

Planning for new or remodeled houses: To help farm families plan for building or remodeling their houses, the Bureau is preparing a series of publications on desirable farm housing features in cooperation with the Bureau of Plant Industry, Soils and Agricultural Engineering. Intended for farm families who must do much of their own planning and construction, these bulletins are written in concise, readable style with a minimum of technical terms and a maximum use of illustrations. Four of this series have been completed and several others are under way.

New farmhouse plans: A Plan Exchange Service is maintained by the State agricultural colleges in cooperation with the Department. From plans prepared by both, regional committees make selection of those which most nearly meet regional needs. Working drawings and plans are then made, which are distributed to farm families through the State agricultural colleges.

During fiscal year 1947 the Bureau worked with the Bureau of Plant Industry, Soils and Agricultural Engineering in developing twelve new farm house plans. These have been approved by the committee for use in the Northeast. Complete working drawings for six of these have been completed by the Bureaus and are ready for distribution. Publicity given to one of these farm house plans by a nationally known farm magazine resulted in a very heavy demand for the working drawings. Twenty-five states have requested negatives of the working drawings, from which blue prints for distribution to farmers are made. Because of the popularity of this plan one large building trade association has prepared working drawings showing the use of its materials. These working drawings will be distributed through the Plan Exchange Service, with no reference to the name of the association or to other trade sources.

Family Economics

Family budgets and financial planning: The upward trend in prices, especially rapid during the last year, means that many families are having difficulties making ends meet, even though incomes and wage

rates are high compared with prewar. The need of individual families for budgeting assistance and the amount given is well attested by the volume of correspondence received by the Bureau -- letters from newly married couples, veterans and their wives just setting up housekeeping, or trying to live on the G. I. education allowances, and others. A publication on family financial planning is now being completed to assist extension workers and teachers to be better informed on the problem, as well as to help families asking for guidance.

Food plans to fit family incomes: To help families improve their diets and get better returns in nutritive value for money and labor expended, the Bureau since 1930 has developed food plans at different cost levels. These food plans are revised from time to time to keep them in line with the latest scientific findings, current food supplies, and price relationships. Rising food prices during the past year have brought increasing requests from homemakers and public agencies for food budgets giving adequate diets for low and medium income families differing in size and with members of various ages. A "minimum-adequate" food budget for an elderly couple, prepared at the request of the Social Security Board, a revision of the "National Food Guide" to include quantitative suggestions for each of the "Basic 7" food groups, and a bulletin on "Food for a Family with Young Children" are examples of recent material which the Bureau has prepared for answer to such requests.

Home Economics Information

The following is a summary of materials reporting the results of the Bureau's studies which were completed from July 1, 1946 to June 30, 1947.

Publications:	15 printed bulletins (12 published, 3 in press)
	22 processed publications (21 issued, 1 in press)
	31 technical articles for professional journals (24 printed, 7 submitted for publication)
Press and Radio:	116 popular articles for magazine and press use (includes popular signed articles, Food and Home Notes, fact sheets, press releases, series of press pictures -- 109 published, 7 in press)
	11 radio broadcasts written or broadcast largely for nationwide networks
Visual:	1 series of 10 charts on nutrition
	1 four-color wall chart on food
	13 sets "Is Research Your Job" -- series of 16 photographs and descriptive legends showing research workers in the Bureau
	1 exhibit of Bureau research prepared for National Home Economics Association meeting
	1 exhibit on clothing make-overs
	1 slide film on meat cooking (revision) for distribution through Extension Service.

STATEMENT OF OBLIGATIONS UNDER SUPPLEMENTAL FUNDS

Item	Obligations, 1947	Estimated Obligations, 1948	Estimated obligations, 1949
Research and Marketing Act of 1946 (Allotment to Bureau of Human Nutrition and Home Economics):			
(Title I, Sec. 10a) Utilization research	- -	$250,000	- -
(Title I, Sec. 10b) Research other than utilization research	- -	55,000	- -
Total	- -	305,000	- -
Special Research Fund (Allotment To Bureau of Human Nutrition and Home Economics): For special research in nutrition	$53,608	37,400	$37,400
Administration of the National School Lunch Act (Allotment to Bureau of Human Nutrition and Home Economics): Nutritional requirements of school feeding programs	24,146	47,000	47,000
Working Funds, Agriculture (Bureau of Human Nutrition and Home Economics): To compile and furnish tables of food composition values to the War Department	4,970	5,000	- -
Penalty Mail Costs, Department of Agriculture (Allotment to Bureau of Human Nutrition and Home Economics): For cost of penalty mail pursuant to Sec. 2, Public Law 364, 78th Congress	749	950	1,020
TOTAL, OBLIGATIONS UNDER SUPPLEMENTAL FUNDS	83,473	395,350	85,420

PENALTY MAIL ESTIMATE

Section-2, Public Law 364, 78th Congress

(Allotment to Bureau of Human Nutrition and Home Economics)

	1947	1948	1949	Increase (+) or Decrease (-) 1949 over 1948
Category 1	$75	$100	$100	- -
Category 2	674	850	920	$+70
Total	749	950	1,020	(1) +70

(1) The increase of $70 for 1949 is for the purpose of providing additional funds required to meet increased costs to the Post Office Department of handling penalty mail. The Post Office Department has advised that payments into the Treasury for costs of handling penalty mail in 1949 will be at the rate of $20.00 per thousand pieces of mail, an increase of $1.40 per thousand over the rate applicable to 1948 mailings.

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Category 1 consists of bulletins, leaflets, and other technical publications describing the results of the research work of the Bureau on problems of family living, nutrition, rural housing, etc., and which are distributed at the direct request of schools, universities, institutions, women's organizations, clubs, private citizens, etc.

Category 2 consists of administrative correspondence and general business operational mailings necessary for the functioning of the Bureau. There is also included in this category considerable correspondence with state colleges and universities which are cooperating with the Bureau in its program.